

FBB



INSTITUTE of HYDROLOGY

MUQDISHO WATER SUPPLY
EXPANSION
STAGE IIA
EXPLORATION AND MODELLING
STUDIES

VOLUME III

This report is prepared for
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by

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APPENDICES

INTRODUCTION

There are six appendices presenting:

- A. Borehole records
- B. Pumping tests
- C. Groundwater chemistry
- D. Groundwater conductivity and temperature
- E. Effect of time step length on predicted drawdown
- F. Stage III wellfield design.

The first four present the field data collected during the study; also included are selected data from previous studies. Appendix E investigates the effect of time step length on the drawdowns predicted by the water management in model Chapter 8 while Appendix F discusses the Stage III wellfield.

The data are processed on a computer data base developed by IH. The method of handling the data is based on the cartesian co-ordinates of each data point so that the data are always presented in ascending grid reference starting in the southwest corner of the area.

The grid references, taken from the 100,000 NA-38 series of maps, consist of eight figures, four eastings and four northings, giving an accuracy of a hundred metres. This has made it necessary to modify the reference given by the maps by omitting the first digit. As an example the new reservoir on 21st October Road is 53272268 and not 853272268 as given from the map.

In cases where several points lie close together, such as at E07, subsequent grid references are altered so that each borehole has a unique grid reference, while we have tried to maintain their relative positions. This is because of the way that the data base operates.

A. BOREHOLE RECORDS

APPENDIX A BOREHOLE RECORDS

This appendix has been subdivided into four sections:

Section 1 is a list of all the boreholes referred to in this report. The list is preceded by figure A.1 which is a map of the area with all the boreholes located on it, the list gives the grid reference, the reference number of the borehole and a brief description of its location. In addition to the boreholes there are wells called River A, River B which refer to the Shebeelle at Afgooye road bridge and Balcad road bridge respectively and Rain which was a rainfall sample collected at K4 on the Afgooye road.

Section 2 lists the salient construction details, where known, of the boreholes given in Section 1. An explanation of the Area, Aquifer, Source codes is given below. The depth is the total depth drilled in metres, the datum is the elevation, in metres, relative to sea level of a convenient point, normally the top of the casing. The casing and screen indicate the materials used, the diameter (in metres) and the position of the top of the screen, with its length.

Section 3 presents the borehole logs. These are only for those boreholes drilled as part of our investigations. The geophysical logs of self-potential (SP), single point resistivity (SPR) and gamma are shown in the left and centre columns. The right hand column shows the rate of penetration log (the average time taken to drill one metre), a simplified lithological log based on drilling samples, and a construction log showing the portion of the screen and casing. Marked on the logs are the static water level (SWL) and the bottom of the logged hole (BOH), which marks the bottom of the geophysical logs as in some cases the drilled hole was deeper.

Section 4 lists all the water levels taken during the study period. The measurements are the depth to water from the datum; for pump tests a temporary datum is often established and this can vary by a few centimetres from the permanent one. Figure A.2 is a map showing the location of all water level measurement points.

The borehole numbering system consists of a number prefixed by one or more letters.

- (a) boreholes drilled and described in the 1980 report (MGQ)
- (b) boreholes referred to in the 1980 report (E)

- (c) boreholes drilled as part of the Afgooye Road Wellfield (PW)
- (d) observation boreholes related to the Afgooye Road Wellfield (OW)
- (e) miscellaneous boreholes and wells located during the current study (no prefix)
- (f) boreholes drilled during the current study (EO)
- (g) some old boreholes have a non standard number such as SL10T which have been retained as they are commonly referred to in other reports.

The codes used in the site summary listing are:

AREA	:	1	Shebeelle
AQUIFER	:	1	alluvium
		2	sand
		3	river
SOURCE	:	1	nonproject boreholes
		2	hand dug wells
		3	1980 project boreholes
		4	project boreholes
		5	Stage I Afgooye Road Wellfield
		6	Stage IIA Afgooye Road Wellfield
		7	river
		8	exploratory test pump borehole

The contractor abbreviations used in Section 2 are:

UNDP	-	United Nations Development Programme
HTS	-	Huntings Technical Service
WDA	-	Water Development Agency
PIHL	-	Contractor on Stage IIA
MOWLEM	-	Joint contractor with WDA on Stage I
MCD	-	Sir M. McDonald & Partners
GKW/GKZ	-	German Consultants/Contractors

In the water level listing some of the dates of the measurements are not known. The data base has to have a date so in order to supply the necessary data, the date of 1 October 1982 has been used.

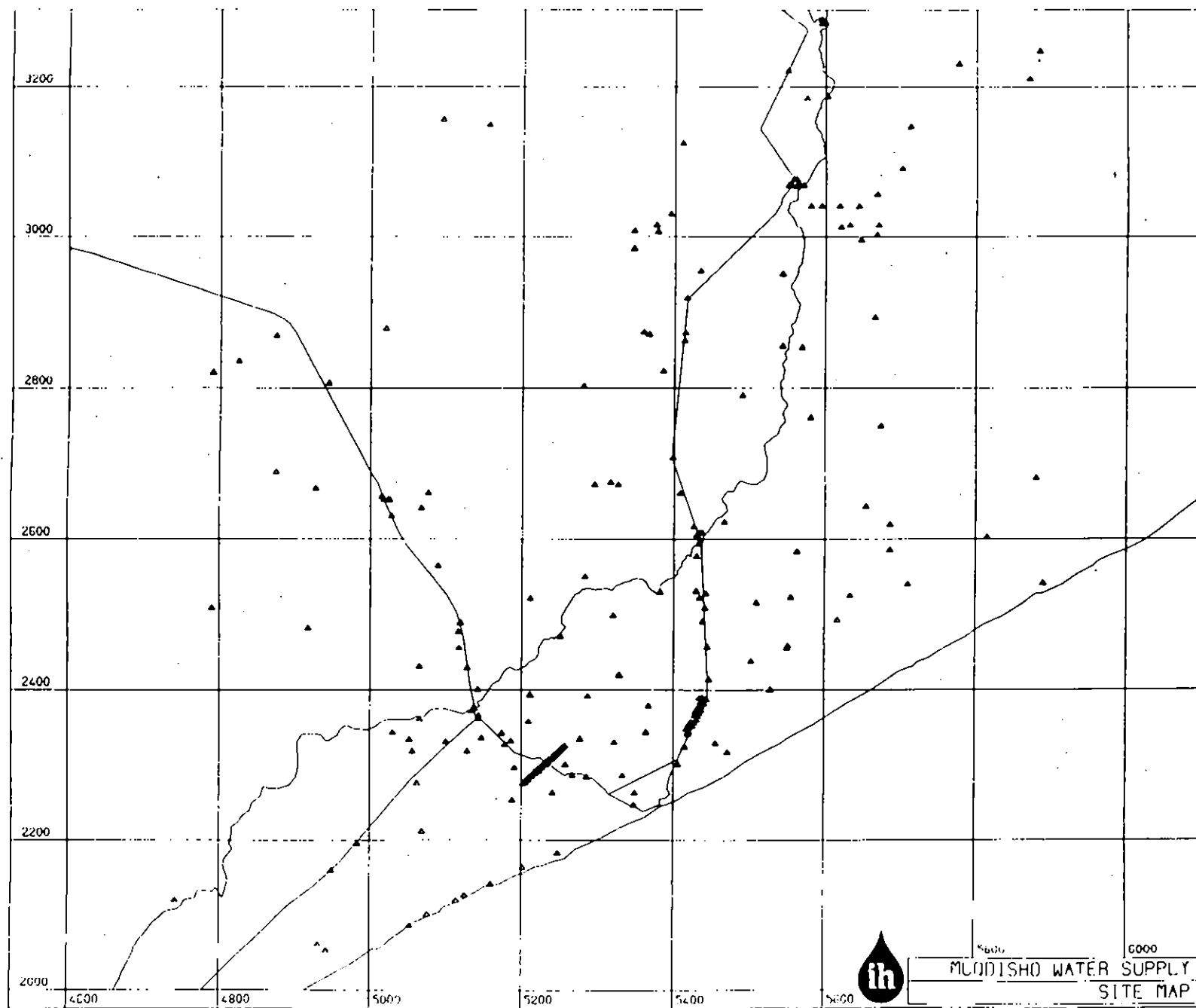


Figure A.1

MUQDISHO WATER SUPPLY
SITE LOCATION INDEX
ALL THE DATA

GRID REF	WELL NUMBER	
47422119	47	MOBARECH (UNDP-1147)
47902508	54	MOLLINA (UNDP-71)
47902820	97	DUDDUMAI (HTS-69)
48242835	96	HACAO (HTS-68)
48742868	98	UANLE UEIN
48752689	95	UANLE UEIN (HTS-67)
48951991	44	BIVIO DANAANE (UNDP-123)
49172481	49	FURUKALEI (UNDP-75)
49272667	51	DUANLE (UNDP-105)
49312061	102	YINKA DOMMANE
49422052	112	YINKA DOMANE
49442806	111	10KM SE OF UANLE UEIN (OW1)
49492159	60	POZZO MURRI (HTS-76)
49632195	59	RAMOLE KM50 (HTS-75)
49642195	58	RAMOLE KM50 (HTS-74)
50152656	101	UAR MAHAN (HTS-66)
50182652	99	UAR MAHAN (HTS-64)
50202678	50	ALI BURALEI (UNDP-72)
50242652	69	WAR MAYAN (HTS-63)
50262651	100	UAR MAHAN (HTS-65)
50282630	ED 12	2 KM SOUTH OF WAR MAXAN
50302341	113	NGRDILE
50522332	114	3KM SE OF RAQAYLE
50532086	88	DHANAANE
50562316	116	5KM SOUTH OF MARERREY (TS-1)
50622275	57	LAANTABUUR (HTS-73)
50652360	115	MARERRY
50652430	80	CUMAR BEERRE (HTS-57)

MUQDISHO WATER SUPPLY
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GRID REF WELL NUMBER

50672641	31	LANCAY (HTS-62)
50692211	ED 14	5.5KM SOUTH EAST OF LAANTABUUR
50762101	107	BANTAABSI
50762661	6	DIGBODDAY (HTS-61)
50892564	110	3KM NW OF DOON WEYNE (DW2)
50943156	52	SIAMES GIOLILOLE (UNDP-174)
51002329	56	AFGOOYE DAIRY FARM (HTS-70)
51142119	106	2KM NE OF RAAS AW MAKI
51162476	5	MAGLA (HTS-81)
51172454	79	BOULALLOH (HTS-56)
51182468	3	LAMA DONKA (HTS-67)
51192468	4	LAMA DONKA (HTS-65)
51252126	108	CEEL XABAALLOO
51282316	64	AFGOOYE DAIRY FARM
51282426	E57	HUNTINGS OBS. WELL NO.3
51342372	E86	PUMPED WELL AT VILLA SOMALIA REST HOUSE AFGOOYE
51372377	22	AFGOOYE MADAYTOOYADA
51382375	RIVER(4)	AFGOOYE BRIDGE
51422400	E56	HUNTINGS OBS. WELL NO.5
51432361	E56	HUNTINGS OBS. WELL NO.4
51432365	E12	PUMPED WELL AT MANGO JUICE FACTORY AFGOOYE
51472334	DW2	OBS WELL SE OF AFGOOYE
51553149	11	JILYAAL
51602141	105	RAAS BAQAL
51742340	E74	PUMPED WELL AT CARBIS MILITARY CAMP
51782325	E87	PUMPED WELL AT NTEC AFGOOYE
51862330	E18	PUMPED WELL IN TRAINING SCHOOL OPPOSITE NTEC

MUQDISHO WATER SUPPLY
SITE LOCATION INDEX
ALL THE DATA

GRID REF WELL NUMBER

51882252	CW 4	OBS. WELL 3.0KM SOUTH-WEST OF AFGOOYE RD. WELLFIELD
51912295	OW3	OBS WELL 4.5KM WEST OF WELLFIELD
52022163	104	JASIIRA
52022275	PW 32	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52052275	PW 31	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52052277	PW 30	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52072279	PW 29	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52092279	PW 28	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52092281	PW 27	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52092356	MGQ4P	OBS. WELL 7KM EAST OF AFGOOYE
52112283	PW 26	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52112393	MGQ1T	TEST WELL 30M NW OF MGQ3P
52112520	78	ALIFOW (HTS-55)
52122392	MGQ3P	OBS WELL 100M SOUTH OF DOONKA
52142283	PW 25	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52142285	PW 24	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52162287	PW 23	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52172289	OW 5	OBS WELL 30M FROM PW 21 ON AFGOOYE RD. WELLFIELD
52182287	PW 22	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52182289	PW 21	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52202291	PW 20	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52222293	PW 18	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52232291	PW 19	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52252295	PW 17	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52252296	PW 17A	AFGOOYE RD. WELLFIELD (SOUTH SIDE) 80M NORTH OF PW 17
52272295	PW 16	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52272297	PW 15	AFGOOYE RD. WELLFIELD (SOUTH SIDE)

MUQDISHO WATER SUPPLY
SITE LOCATION INDEX
ALL THE DATA

GRID REF WELL NUMBER

52292299	PW 14	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52322299	PW 13	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52322301	PW 12	AFGOOYE RD. WELLFIELD (SOUTH SIDE)
52322302	MGQ2P	OBS WELL AT KM17.5 AFGOOYE RD
52342303	PW1	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52362305	PW2	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52402307	PW3	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52412262	GW 8	3.4KM ALONG TRACK TO SOUTH OF AFGOOYE ROAD POLICE POST
52412309	PW4	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52422310	GW1	OBS WELL 20M FROM PW5
52432311	PW5	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52462313	PW6	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52482182	103	CEEL HUUR
52482315	PW7	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52502317	PW8	AFGOOYE ROAD WELLFIELD (NORTH SIDE)
52512470	MGQ13P	OBS WELL AT END OF SHOT LINE RD (BY SHABEELLE)
52524319	PW 9	AFGOOYE RD. WELLFIELD (NORTH SIDE)
52542321	PW 10	AFGOOYE RD. WELLFIELD (NORTH SIDE)
52572323	PW 11	AFGOOYE RD. WELLFIELD (NORTH SIDE)
52582299	E59	PUMPED WELL AT KM15 AFGOOYE RD
52672285	E84	PUMPED WELL AT CHICKEN FARM AFGOOYE RD
52772332	MGQ10P	OBS WELL 7KM ALONG TRACK FROM MGQ4P 1KM SOUTH
52772333	MGQ5T	TEST WELL 30M NE OF MGQ10P
52802802	EO 9TW	TEST WELL 30M FROM EO 9
52812802	EO 9	15KM NORTH WEST OF GOLOLEY
52832549	EO 10	1.2KM NORTH OF BASRA
52862263	MGQ1P	OBS WELL KM11 ON AFGOOYE RD

MUQDISHO WATER SUPPLY
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GRID REF	WELL NUMBER	
52872391	MGQ5P	OBS WELL 8.5KM ENE OF BUULO RISQI
52952672	75	MAREEREY (HTS-30)
53162675	74	YAWAAL BARREY (HTS-29)
53202498	MGQ11P	OBS WELL 2KM WEST OF GEEDFAQAY
53222328	E70	PUMPED WELL IN MILITARY CAMP BY RADIO STN
53262672	73	YAWAAL BARREY (HTS-28)
53282419	MGQ2T	TEST WELL 20M NW OF MGQ6PA
53292418	MGQ6PA	OBS WELL 12KM ALONG SHOT LINE RD
53332285	E73	PUMPED WELL IN MILITARY CAMP BY RADIO STN
53452983	67	GOLLOLEY JAWHAR
53462984	89	GOLLOLEY JAWHAR
53463007	68	CEESHODY (HTS-20)
53482246	RAIN	RAINFALL SAMPLE AT K4 AFGODYE RD
53492262	E32	PUMPED WELL AT CASA POPOLARE AFRICAN VILLAGE
53592873	77	SAARSAARAY (HTS-23)
53642341	MGQ4T	TEST WELL 30M N OF MGQ9P
53642342	MGQ9P	OBS WELL 5KM N OF NEW STADIUM
53662870	76	DOONDOHEERE (HTS-22)
53672379	SL10T	PUMPED WELL 7.5KM ALONG SHOT LINE RD
53753015	13	SHEKH BASHIR
53773006	66	DOONCADYGA (HTS-19)
53812528	MGQ6T	TEST WELL 30M SE OF MGQ12P
53822529	MGQ12P	OBS WELL 9KM DOWNSTREAM OF BALCAD
53852822	72	CADDEY (HTS-26)
53943030	65	GAABANEY (HTS-18)
53982708	48	GOLOLEI (UNDP-49)
54062300	E55	WELL 300M ESE OF PASTA FACTORY

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GRID REF	WELL NUMBER	
54082661	55	FAARAY GALDOOLEY (HTS-27)
54103124	12	CARMOOLEY
54132862	70	QALIMOW (HTS-24)
54142872	71	QALIMOW (HTS-25)
54152322	MO33CP	COASTAL OW KM7.8 ON BALCAD RD
54162918	E0 13	WEST OF GARSAALE
54172346	10.5CP	BALCAD ROAD WELLFIELD (OBS. WELL)
54192339	9.54	BALCAD ROAD WELLFIELD
54202342	10AAA	BALCAD ROAD WELLFIELD
54202352	11B	BALCAD ROAD WELLFIELD
54232356	11.5B	BALCAD ROAD WELLFIELD
54252350	11A	BALCAD ROAD WELLFIELD
54262616	15	BALCAD GUDHEEDA
54272355	11.5A	BALCAD ROAD WELLFIELD
54282366	12.5B	BALCAD ROAD WELLFIELD
54292371	13B	BALCAD ROAD WELLFIELD
54292530	9	HILWEEYNE ARMY CAMP
54302354	12A	BALCAD ROAD WELLFIELD
54302530	18	HILWEEYNE ARMY CAMP
54302577	E76	PUMPED WELL AT CENTRE 2KM SOUTH OF BALCAD
54302605	E2	PUMPED WELL 900M NORTH OF BALCAD BRIDGE
54322364	12.5A	BALCAD ROAD WELLFIELD
54322375	13.5B	BALCAD ROAD WELLFIELD
54332594	21	BALCAD WASHADDA
54332608	14	BALCAD NO.1
54342369	13A	BALCAD ROAD WELLFIELD
54342379	14B	BALCAD ROAD WELLFIELD
54342389	15CP	BALCAD ROAD WELLFIELD (OBS. WELL)

MUQDISHO WATER SUPPLY
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GRID REF	WELL NUMBER	
54342521	E75	PUMPED WELL 7KM SOUTH OF BALCAD (MILITARY)
54342595	E4	PUMPED WELL AT SOMALTEK BALCAD
54342954	16	BALCAD WASHADDA
54352598	RIVER(8)	BALCAD BRIDGE
54362373	13.5A	BALCAD ROAD WELLFIELD
54362384	14.5B	BALCAD ROAD WELLFIELD
54372378	14A	BALCAD ROAD WELLFIELD
54372608	17	BALCAD NO.2
54382380	15B	BALCAD ROAD WELLFIELD
54382490	7	HILWEEYNE
54402382	14.5A	BALCAD ROAD WELLFIELD
54412508	E61	PUMPED WELL 8KM SOUTH OF BALCAD
54422527	10	HILWEEYNE
54432387	15A	BALCAD ROAD WELLFIELD
54442455	MGQ3T	TEST WELL 20M SOUTH OF MGQ7P
54442456	MGQ7P	OBS WELL 4KM NORTH OF ALI ALIO
54462413	E62	PUMPED WELL AT ALI ALIO
54552327	MGQ2CP	COASTAL OBS WELL 3.5KM FROM COAST
54662622	19	JAAMACAADA UMNAADA
54712315	MGQ1CP	COASTAL OBS WELL 1.5KM FROM COAST
54902790	EO 8	12.5KM NORTH EAST OF GOLALEY
55022437	MGQ8P	OBS WELL 6KM ALONG KULAAMANY TRACK
55092515	EO 11	7KM ALONG OUTLINE FROM BALCAD ROAD
55282400	86	ARRAADDE
55422950	EO 7A	12KM SOUTH OF JOWHAR
55432855	94	YAWAADLEY
55432949	EO 7TW	TEST WELL 30M FROM BOTH EO 7 AND EO 7A
55432950	EO 7	12KM SOUTH OF JOWHAR

MUQDISHO WATER SUPPLY
SITE LOCATION INDEX
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GRID REF WELL NUMBER

55502454	90	COOLWEYNE (KULAA MENY) (HTS-34)
55503068	38	JOWHAR (GKW/GKZ-12)
55503221	84	MAYAMED BUURFUULE (HTS-90)
55512457	E63	PUMPED WELL AT KULAAMANY
55533068	39	JOWHAR (GKW/GKZ-13)
55543068	40	JOWHAR (GKW/GKZ-14)
55552522	91	GARIIRA CUDDEY
55573077	37	JOWHAR (GKW/GKZ-11)
55583076	32	JOWHAR (GKW/GKZ-2)
55613067	35	JOWHAR (GKW/GKZ-9)
55613076	36	JOWHAR (GKW/GKZ-10)
55632583	EO 4	14.8KM ALONG OUTLINE FROM BALCAD RD. RIGHT FOR 5.7KM
55643070	34	JOWHAR (GKW/GKZ-4)
55692853	20	TUULAD MAQDIS
55703068	33	JOWHAR (GKW/GKZ-3)
55753184	85	BERRE UEN FARM
55803040	24	JOWHAR SUGAR ESTATE (MCDONALD-2)
55812761	EO 3	9KM SOUTH OF MAQDAS
55943040	28	JOWHAR SUGAR ESTATE (MCDONALD-6)
55943268	61	MAHADDAY WEYNE (HTS-12)
55953263	82	MAHADDAY WEYNE
55993263	83	MAHADDAY WEYNE
56023187	8	TUULADA
56172492	92	SHIIKH ROBELE
56183040	23	JOWHAR SUGAR ESTATE (MCDONALD-1)
56203012	30	JOWHAR SUGAR ESTATE (MCDONALD-8)
56323015	29	JOWHAR SUGAR ESTATE (MCDONALD-7)
56342524	93	CAAMIR GACANDHEER

MUQDISHO WATER SUPPLY
SITE LOCATION INDEX
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GRID REF WELL NUMBER

56443040	26	JOWHAR SUGAR ESTATE (MCDONALD-4)
56472995	EO 1	GUMARREY ON THE JOWHAR SUGAR ESTATE
56542643	EO 5	23.4KM ALONG OUTLINE AND RIGHT FOR 3.6KM
56662893	41	FAK MOHAMED (HTS-56)
56683002	27	JOWHAR SUGAR ESTATE (MCDONALD-5)
56683056	25	JOWHAR SUGAR ESTATE (MCDONALD-3)
56703015	31	JOWHAR SUGAR ESTATE (MCDONALD-9)
56742750	EO 2	27KM ALONG OUTLINE FROM BALCAD RD. LEFT FOR 6KM
56862585	EO 6	23.4KM ALONG OUTLINE FROM BALCAD RD. RIGHT FOR 9.6KM
56862619	45	ADAID (UNDP-1301)
57013091	53	GILIALE (UNDP-109)
57102539	87	CEELLOW
57123146	62	GIAMEA FIDDO (HTS-13)
57763230	63	GARAS BARQO
58152602	1	QURUNLOW
58703210	42	ACAB DOCC (UNDP-210)
58802661	2	ILIK MODOBE (UNDP-1399)
58833246	117	BID CADDE
58902540	46	VARSIK (UNDP-1427)

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	47422119 47	47902508 54	47902820 97	48242835 96	48742868 98
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AREA	1	1	1	1	1
AQUIFER	1	1	1	1	1
SOURCE	2	1	1	1	1

CONTRACTOR	UNDP	UNDP	HTS	HTS	WDA
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CONSTR. DATE				1 JUL 55	
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DEPTH	14.100	105.000	130.000	105.000	115.000
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DATUM	74.000	85.000	100.000	95.000	90.000
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CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	48752689	48951991	49172481	49272667	49312061
WELL NUMBER	95	44	49	51	102
AREA	1	1	1	1	1
AQUIFER	1	2	1	1	2
SOURCE	1	3	1	1	1
CONTRACTOR	HTS	UNDP	UNDP	UNDP	HTS
CONSTR. DATE	1 JAN 54				
DEPTH	153.000	4.700	100.000	115.000	
DATUM	90.000	12.000	83.000	88.000	130.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
 SITE SUMMARY
 ALL THE DATA

GRID REF	49422052	49442806	49492159	49832195	49842195
WELL NUMBER	112	111	60	59	58
AREA	1	1	1	1	1
AQUIFER	2	1	2	2	2
SOURCE	1	1	1	1	1
CONTRACTOR		HTS	HTS	HTS	HTS
CONSTR. DATE					
DEPTH		102.000	96.000	63.000	63.000
DATUM	150.000	88.000	74.000	77.000	77.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	50152656	50182652	50202878	50242652	50262651
WELL NUMBER	101	99	50	69	100
AREA	1	1	1	1	1
AQUIFER	1	1	1	1	1
SOURCE	1	1	1	1	1
CONTRACTOR	HTS	HTS	UNDP	HTS	HTS
CONSTR. DATE	1 DEC 62	1 SEP 54		1 FEB 54	
DEPTH	126.000	90.000	100.000	103.000	
DATUM	87.000	37.000	92.000	87.000	87.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
 SITE SUMMARY
 ALL THE DATA

GRID REF WELL NUMBER	50282630 EO 12	50302341 113	50522332 114	50532086 88	50562316 116
AREA	1	1	1	1	1
AQUIFER	1	1	1	2	1
SOURCE	4	1	1	1	1
CONTRACTOR	PIHL				
CONSTR. DATE	30 OCT 83				
DEPTH	275.000	122.000			
DATUM	37.000	80.000	80.000	15.000	80.000
CASING TYPE	PLASTIC				
DIAMETER	0.102				
SCREEN TYPE	PLASTIC				
DIAMETER	0.102				
SCREENS	1				
DEPTH 1	152.100				
LENGTH 1	12.000				
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
 SITE SUMMARY
 ALL THE DATA
 50692211
 EO 14

GRID REF WELL NUMBER	50622275 57	50652360 115	50652430 80	50672641 61	50692211 EO 14
AREA	1	1	1	1	1
AQUIFER	2	1	1	1	2
SOURCE	1	1	1	1	4
CONTRACTOR	HTS		HTS	HTS	PIHL
CONSTR. DATE				1 NOV 56	29 JUL 83
DEPTH	116.000		102.000	118.000	223.600
DATUM	60.000		84.000	88.000	106.000
CASING TYPE					PLASTIC
DIAMETER					0.102
SCREEN TYPE					PLASTIC
DIAMETER					0.102
SCREENS					1
DEPTH 1					131.600
LENGTH 1					12.000
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	50762101	50762661	50892564	50943156	51002329
WELL NUMBER	107	6	110	52	56

AREA	1	1	1	1	1
AQUIFER	2	1	1	1	2
SOURCE	2	1	1	1	1

CONTRACTOR		HTS	HTS	UNDP	HTS
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CONSTR. DATE		15 NOV 56			1 OCT 68
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DEPTH		160.000	150.000	140.000	122.000
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DATUM		87.000	87.000	97.000	82.000
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CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	51142119 100	51162476 5	51172454 79	51182488 3	51192488 4
AREA	1	1	1	1	1
AQUIFER	2	1	1	1	1
SOURCE	2	1	1	1	1
CONTRACTOR		HTS	HTS	HTS	HTS
CONSTR. DATE		15 MAY 61	1 JAN 68	15 MAR 54	
DEPTH		112.000	133.000	120.000	108.000
DATUM		85.000	85.000	84.000	86.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQOISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	51252126 108	51282316 64	51372377 22	51553149 11	51602141 105
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AREA	1	1	1	1	1
AQUIFER	2	2	1	1	2
SOURCE	2	1	1	1	2

CONTRACTOR			WDA	WDA	
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CONSTR. DATE

DEPTH		152.000	106.000	172.000	
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DATUM		84.000	88.000	102.000	
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CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	52022163	52112520	52482182	52802802	52812802
WELL NUMBER	104	78	103	EO 9TW	EO 9
AREA	1	1	1	1	1
AQUIFER	2	1	2	1	1
SOURCE	2	1	2	8	4
CONTRACTOR		MTS		PIHL	PIHL
CONSTR. DATE		1 AUG 63		12 SEP 83	8 MAR 83
DEPTH		146.000		180.900	200.000
DATUM		87.000		92.000	92.000
CASING TYPE				STEEL	PLASTIC
DIAMETER				0.254	0.102
SCREEN TYPE				.4MM SWIRE	PLASTIC
DIAMETER				0.203	0.102
SCREENS				1	1
DEPTH 1				153.000	148.000
LENGTH 1				12.000	18.000
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	52832549 EQ 10	52952672 75	53162675 74	53262672 73	53452983 67
AREA	1	1	1	1	1
AQUIFER	1	1	1	1	1
SOURCE	4	1	1	1	1
CONTRACTOR	PIHL	HTS	HTS	HTS	
CONSTR. DATE	24 AUG 83	1 MAY 56	1 APR 58	1 MAY 57	15 AUG 55
DEPTH	208.000	125.000	163.000	106.000	105.000
DATUM	89.000	89.000	89.000	89.000	102.000
CASING TYPE	PLASTIC				
DIAMETER	0.102				
SCREEN TYPE	PLASTIC				
DIAMETER	0.102				
SCREENS	1				
DEPTH 1	184.000				
LENGTH 1	12.000				
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	53462984 89	53463007 68	53592873 77	53662870 76	53753015 13
AREA	1	1	1	1	1
AQUIFER	1	1	1	1	1
SOURCE	1	1	1	1	1
CONTRACTOR	WDA	HTS	HTS	HTS	WDA
CONSTR. DATE	15 AUG 55	1 DEC 54	1 JUL 55	1 JUL 57	
DEPTH	123.000	85.000	78.000	128.000	120.000
DATUM	97.000	96.700	96.100	95.900	109.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	53773006 66	53852822 72	53943030 65	53982708 48	54082661 55
AREA	1	1	1	1	1
AQUIFER	1	1	1	1	1
SOURCE	1	1	1	1	1
CONTRACTOR	HTS	HTS	HTS	UNDP	HTS
CONSTR. DATE	1 JUL 55	1 JUN 56	1 DEC 54		15 DEC 63
DEPTH	96.000	115.000	96.000	102.000	115.000
DATUM	109.000	97.000	108.000	89.000	93.000
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	54103124	54132862	54142872	54162918	54262616
WELL NUMBER	12	70	71	EO 13	15
AREA	1	1	1	1	1
AQUIFER	1	1	1	1	2
SOURCE	1	1	1	4	1
CONTRACTOR	WDA	HTS	HTS	PIHL	WDA
CONSTR. DATE		1 FEB 68	1 FEB 68	22 MAR 83	
DEPTH	135.000	156.000		204.000	123.000
DATUM	108.000	98.000	98.000	100.000	
CASING TYPE				PLASTIC	
DIAMETER				0.102	
SCREEN TYPE				PLASTIC	
DIAMETER				0.102	
SCREENS				1	
DEPTH 1				154.000	
LENGTH 1				12.000	
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	54292530 9	54302530 18	54332594 21	54332608 14	54342954 16
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AREA	1	1	1	1	1
AQUIFER	2	2	2	2	2
SOURCE	1	1	1	1	1

CONTRACTOR	WDA	WDA	WDA	WDA	WDA
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CONSTR. DATE

DEPTH	128.000	128.000		120.000	120.000
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DATUM	130.000	130.000		90.800	94.700
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CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	54372608	54382490	54422527	54662622	54902790
WELL NUMBER	17	7	10	19	EO 8
AREA	1	1	1	1	1
AQUIFER	2	2	2	2	1
SOURCE	1	1	1	1	4
CONTRACTOR	WDA	WDA	WDA	WDA	PIHL
CONSTR. DATE					3 APR 83
DEPTH	120.000	150.000	148.000	120.000	190.900
DATUM	91.000	172.000	130.000	93.000	98.000
CASING TYPE					PLASTIC
DIAMETER					0.102
SCREEN TYPE					PLASTIC
DIAMETER					0.102
SCREENS					1
DEPTH 1					158.000
LENGTH 1					12.000
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	55092515 EO 11	55282400 86	55422950 EO 7A	55432855 94	55432949 EO 7TW
AREA	1	1	1	1	1
AQUIFER	2	2	1	1	1
SOURCE	4	2	4	2	8
CONTRACTOR	PIHL		PIHL		PIHL
CONSTR. DATE	8 SEP 83		2 MAR 83		21 AUG 83
DEPTH	257.200		29.600		187.100
DATUM	131.000	31.000	103.000	102.000	103.000
CASING TYPE	PLASTIC		PLASTIC		STEEL
DIAMETER	0.102		0.102		0.254
SCREEN TYPE	PLASTIC		PLASTIC		.4MM SWIRE
DIAMETER	0.102		0.102		0.203
SCREENS	1		1		1
DEPTH 1	224.000		20.600		164.000
LENGTH 1	12.000		6.000		12.000
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
 SITE SUMMARY
 ALL THE DATA

GRID REF	55432950	55502454	55503068	55503221	55533068
WELL NUMBER	ED 7	90	38	84	39

AREA	1	1	1	1	1
AQUIFER	1	2	1	1	1
SOURCE	4	1	1	2	1

CONTRACTOR	PIHL	HTS	GKW/GKZ	GKW/GKZ
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CONSTR. DATE	25 FEB 83
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DEPTH	203.000
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DATUM	103.000	61.000	102.300	111.000	103.700
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CASING TYPE	PLASTIC
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DIAMETER	0.102
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SCREEN TYPE	PLASTIC
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DIAMETER	0.102
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SCREENS	1
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DEPTH 1	104.700
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LENGTH 1	12.000
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DEPTH 2	
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LENGTH 2	
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MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	55543068 40	55552522 91	55573077 37	55583076 32	55613067 35
AREA	1	1	1	1	1
AQUIFER	1	2	1	1	1
SOURCE	1	1	1	1	1
CONTRACTOR	GKW/GKZ		GKW/GKZ	GKW/GKZ	
CONSTR. DATE					
DEPTH	110.000			30.000	
DATUM	103.700	124.000	102.700	102.700	104.700
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	55632583	55643070	55692853	55703068	55753184
WELL NUMBER	20 4	34	20	33	85
AREA	1	1	1	1	1
AQUIFER	2	1	1	1	1
SOURCE	4	1	1	1	1
CONTRACTOR	PIHL	GKW/GKZ	WDA	GKW/GKZ	
CONSTR. DATE	7 JUN 83				
DEPTH	265.000		104.000		
DATUM	155.000	103.000	102.000	102.000	105.000
CASING TYPE	PLASTIC				
DIAMETER	0.102				
SCREEN TYPE	PLASTIC				
DIAMETER	0.102				
SCREENS	1				
DEPTH 1	205.000				
LENGTH 1	12.000				
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	55803040	55812761	55943040	55943288	55953283
WELL NUMBER	24	EO 3	28	61	82
AREA	1	1	1	1	1
AQUIFER	1	2	1	1	1
SOURCE	2	4	2	1	2
CONTRACTOR	MCD	PIHL	MCD	HTS	
CONSTR. DATE		31 MAY 83		1 JAN 58	
DEPTH		150.500		115.000	9.500
DATUM	102.500	98.000	100.900	110.500	110.000
CASING TYPE		PLASTIC			
DIAMETER		0.102			
SCREEN TYPE		PLASTIC			
DIAMETER		0.102			
SCREENS		1			
DEPTH 1		126.000			
LENGTH 1		12.000			
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	55993283	56023187	56172492	56183040	56203012
WELL NUMBER	83	8	92	23	30
AREA	1	1	1	1	1
AQUIFER	1	2	2	1	1
SOURCE	1	1	2	2	2
CONTRACTOR		WDA		MCD	MCD
CONSTR. DATE					
DEPTH		87.000	42.000		
DATUM	110.000	104.000		101.600	100.600
CASING TYPE					
DIAMETER					
SCREEN TYPE					
DIAMETER					
SCREENS					
DEPTH 1					
LENGTH 1					
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	56323015 29	56342524 93	56443040 26	56472995 EO 1	56542643 EO 5
AREA	1	1	1	1	1
AQUIFER	1	2	1	1	2
SOURCE	2	2	2	4	4
CONTRACTOR	MCD		MCD	PIHL	PIHL
CONSTR. DATE				10 FEB 83	19 APR 83
DEPTH				162.000	277.600
DATUM	100.500	65.000	101.200	104.000	171.000
CASING TYPE				PLASTIC	PLASTIC
DIAMETER				0.102	0.102
SCREEN TYPE				PLASTIC	PLASTIC
DIAMETER				0.102	0.102
SCREENS				2	1
DEPTH 1				135.000	248.000
LENGTH 1				6.000	12.000
DEPTH 2				153.000	
LENGTH 2				6.000	

MUQDISHO WATER SUPPLY
 SITE SUMMARY
 ALL THE DATA
 56742750
 EO 2

GRID REF	56662893	56683002	56683056	56703015	
WELL NUMBER	41	27	25	31	
AREA	1	1	1	1	1
AQUIFER	2	1	1	1	2
SOURCE	1	2	2	2	4
CONTRACTOR	HTS	MCD	MCD	MCD	PIHL
CONSTR. DATE	1 AUG 60				25 MAY 83
DEPTH	100.000				284.600
DATUM	100.500	101.100	101.300	100.400	202.000
CASING TYPE					PLASTIC
DIAMETER					0.102
SCREEN TYPE					PLASTIC
DIAMETER					0.102
SCREENS					1
DEPTH 1					227.000
LENGTH 1					12.000
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF WELL NUMBER	56862585 30 6	56862619 45	57013091 53	57102539 87	57123146 62
AREA	1	1	1	1	1
AQUIFER	2	2	1	2	1
SOURCE	4	2	1	2	1
CONTRACTOR	PIHL	UNDP	UNDP		HTS
CONSTR. DATE	28 APR 83				1 DEC 58
DEPTH	204.400	2.600	105.000		100.000
DATUM	94.000		111.000	29.000	110.000
CASING TYPE	PLASTIC				
DIAMETER	0.102				
SCREEN TYPE	PLASTIC				
DIAMETER	0.102				
SCREENS	1				
DEPTH 1	138.000				
LENGTH 1	12.000				
DEPTH 2					
LENGTH 2					

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA

GRID REF	57763230	58152602	58703210	58802681	58833246
WELL NUMBER	63	1	42	2	117

AREA	1	1	1	1	1
AQUIFER	1	2	2	2	1
SOURCE	1	2	1	2	1

CONTRACTOR	FAILLACE	UNDP	UNDP
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CONSTR. DATE	8 OCT 70
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DEPTH	127.000	140.000	127.000
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DATUM	111.000	40.000	116.000	49.000	112.000
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CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

MUQDISHO WATER SUPPLY
SITE SUMMARY
ALL THE DATA
58902540
46

GRID REF
WELL NUMBER

AREA
AQUIFER
SOURCE

1
2
2

CONTRACTOR

UNDP

CONSTR. DATE

DEPTH

4.000

DATUM

5.000

CASING TYPE

DIAMETER

SCREEN TYPE

DIAMETER

SCREENS

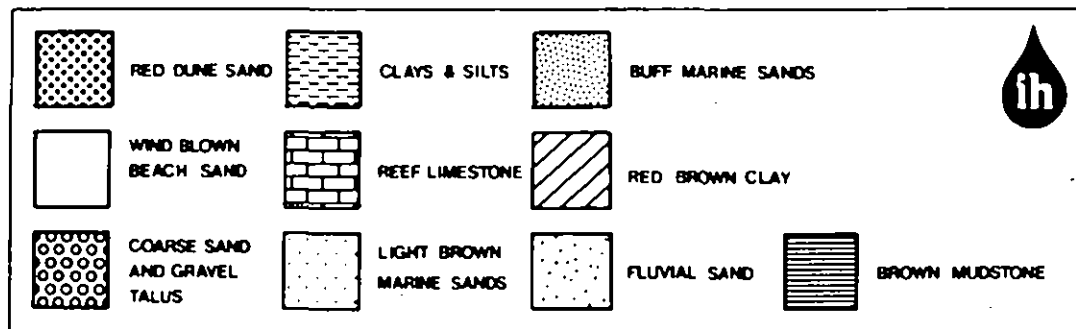
DEPTH 1

LENGTH 1

DEPTH 2

LENGTH 2

Key to lithological logs

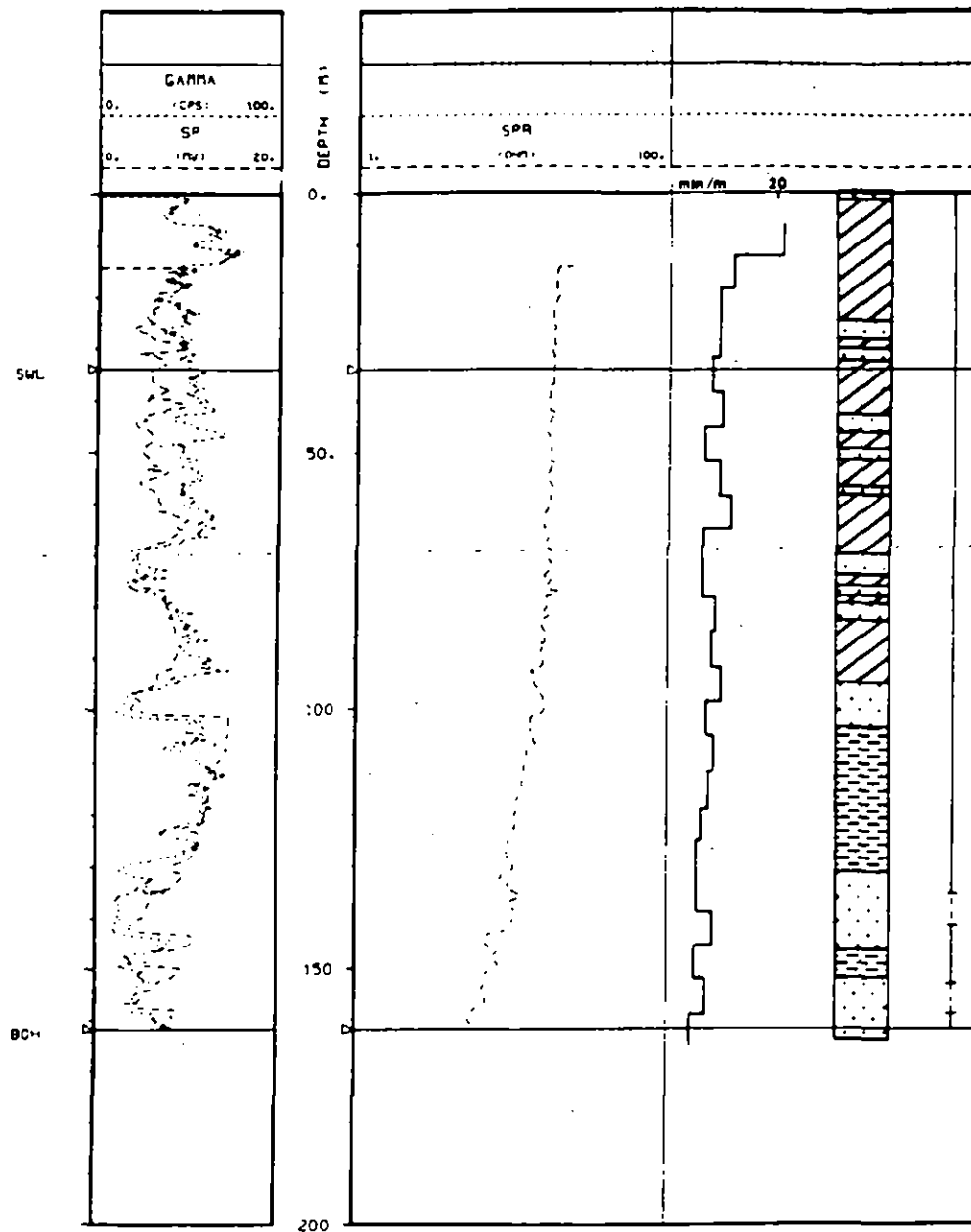


MUDDISHO WATER SUPPLY

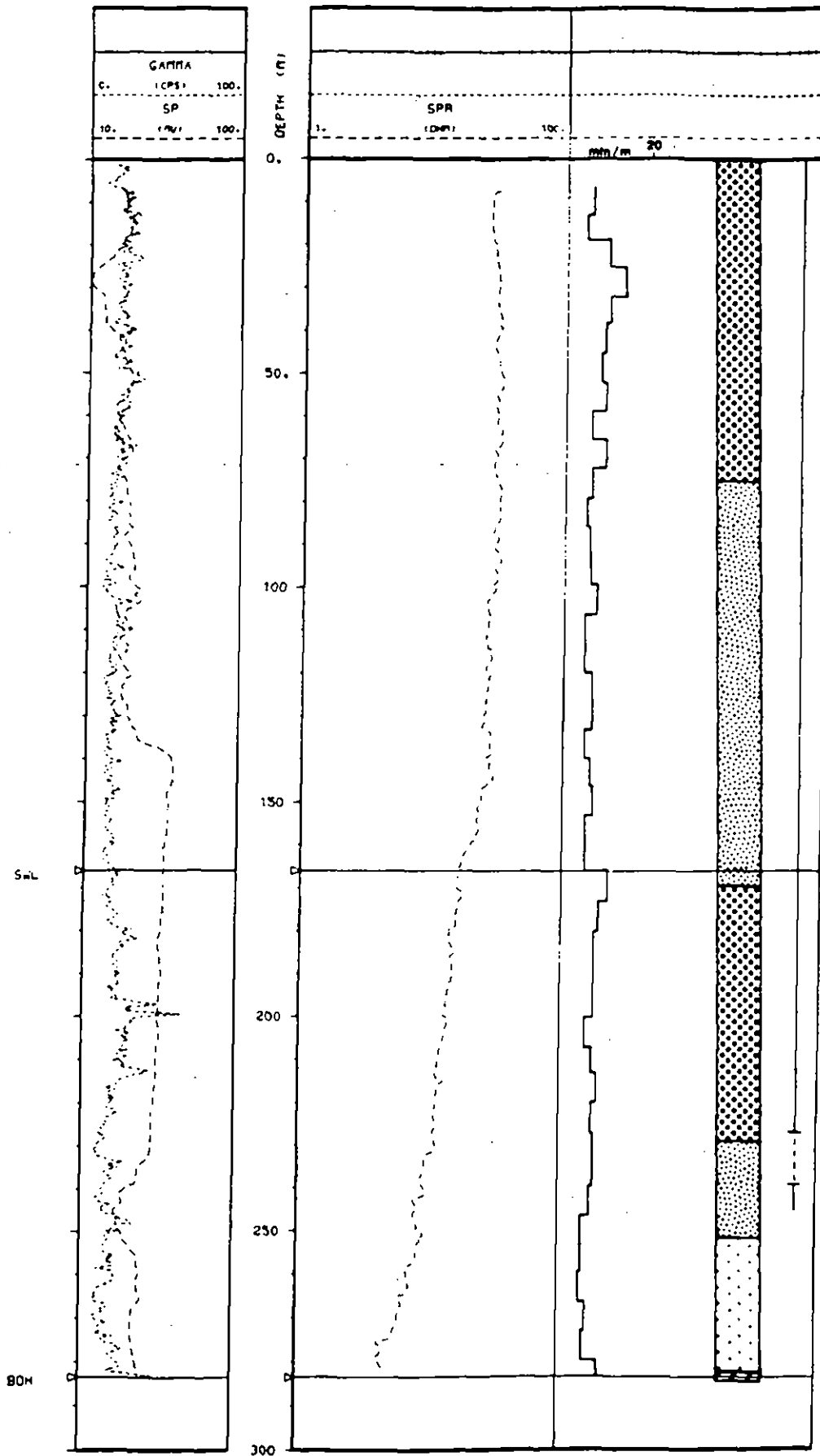
E01

5647 2983

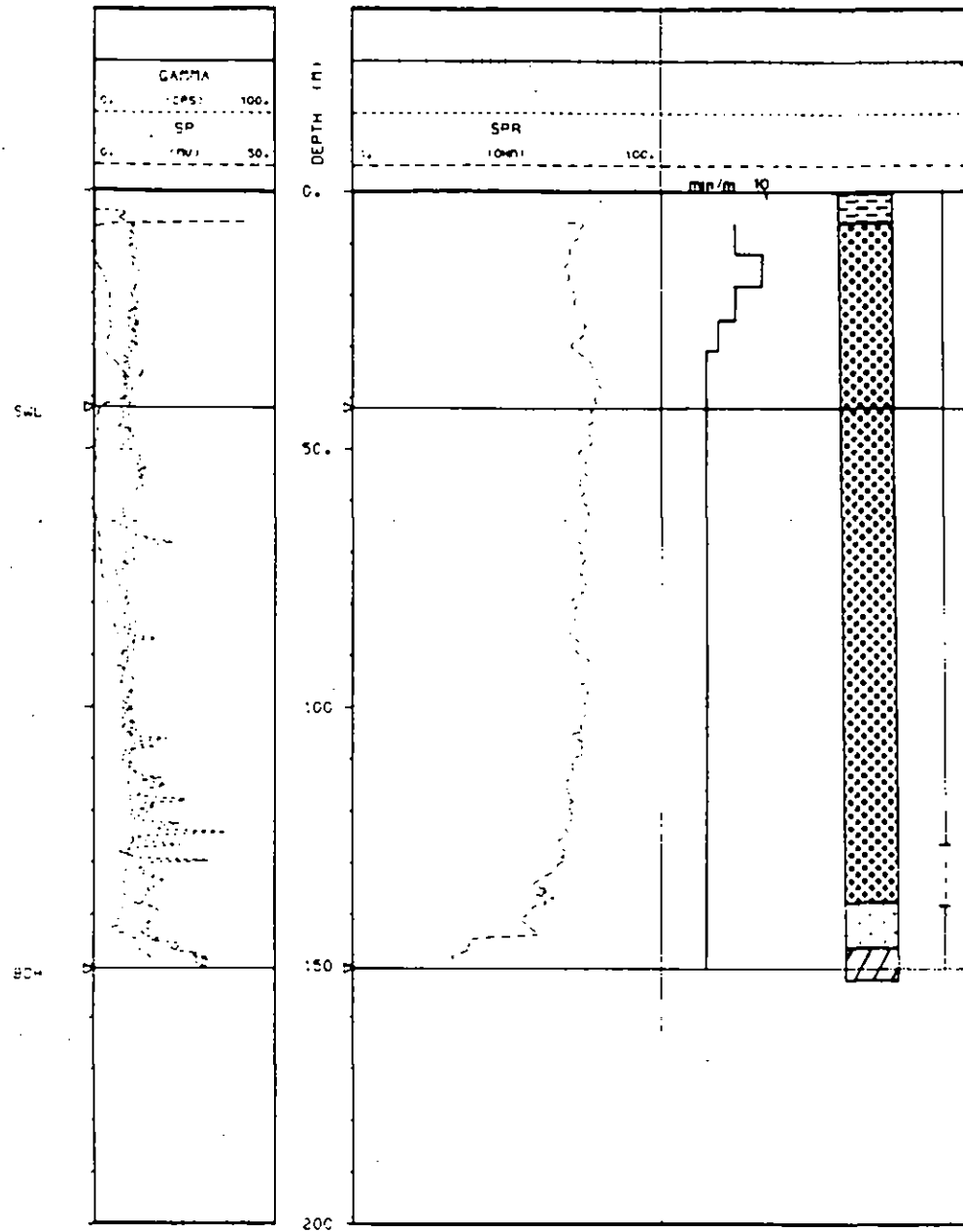
104 FASL



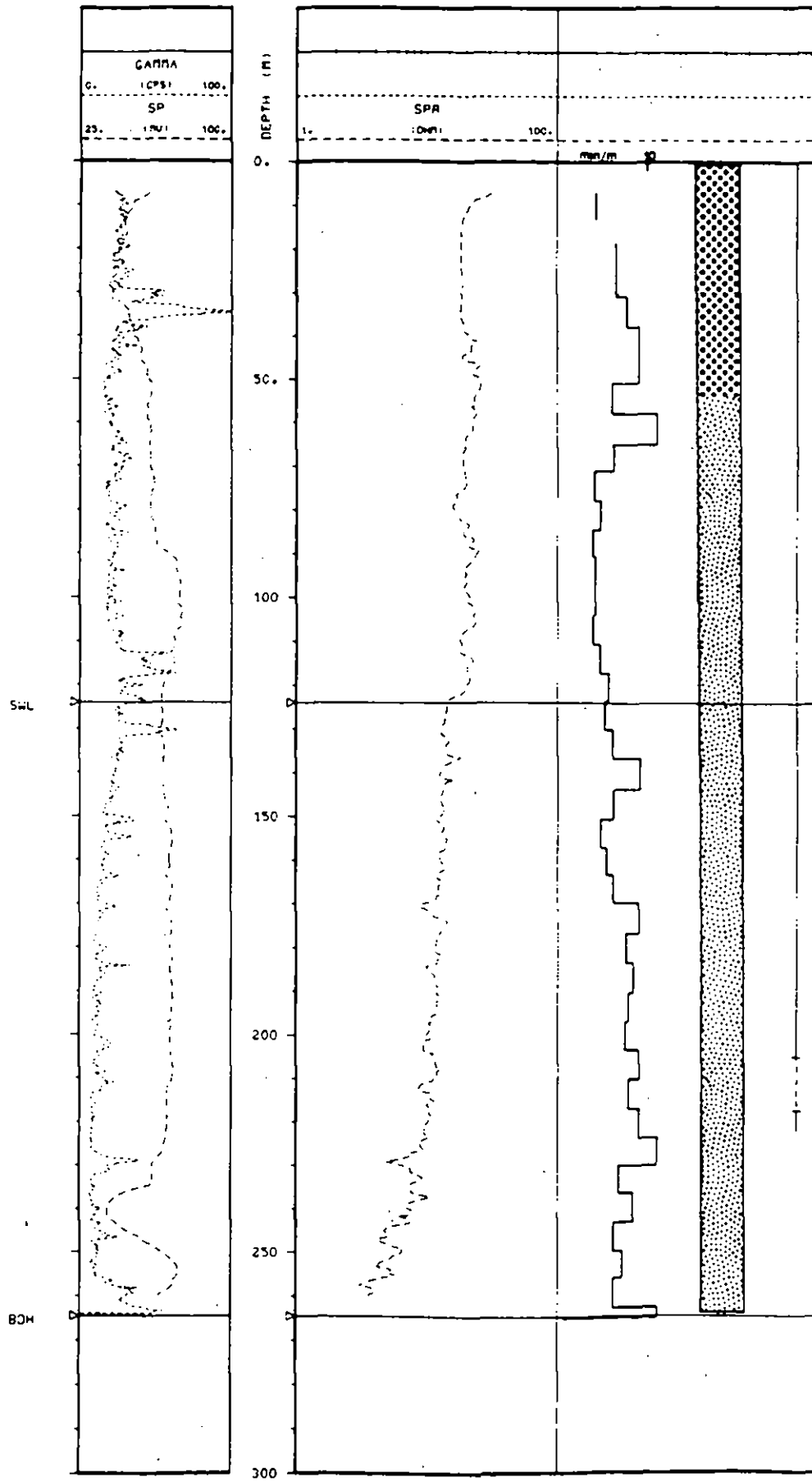
PROJECT MUOOSHIO WATER SUPPLY
 BOREHOLE E02
 GRID REF 5674 2730
 DATUM ELEVATION 186 MASL



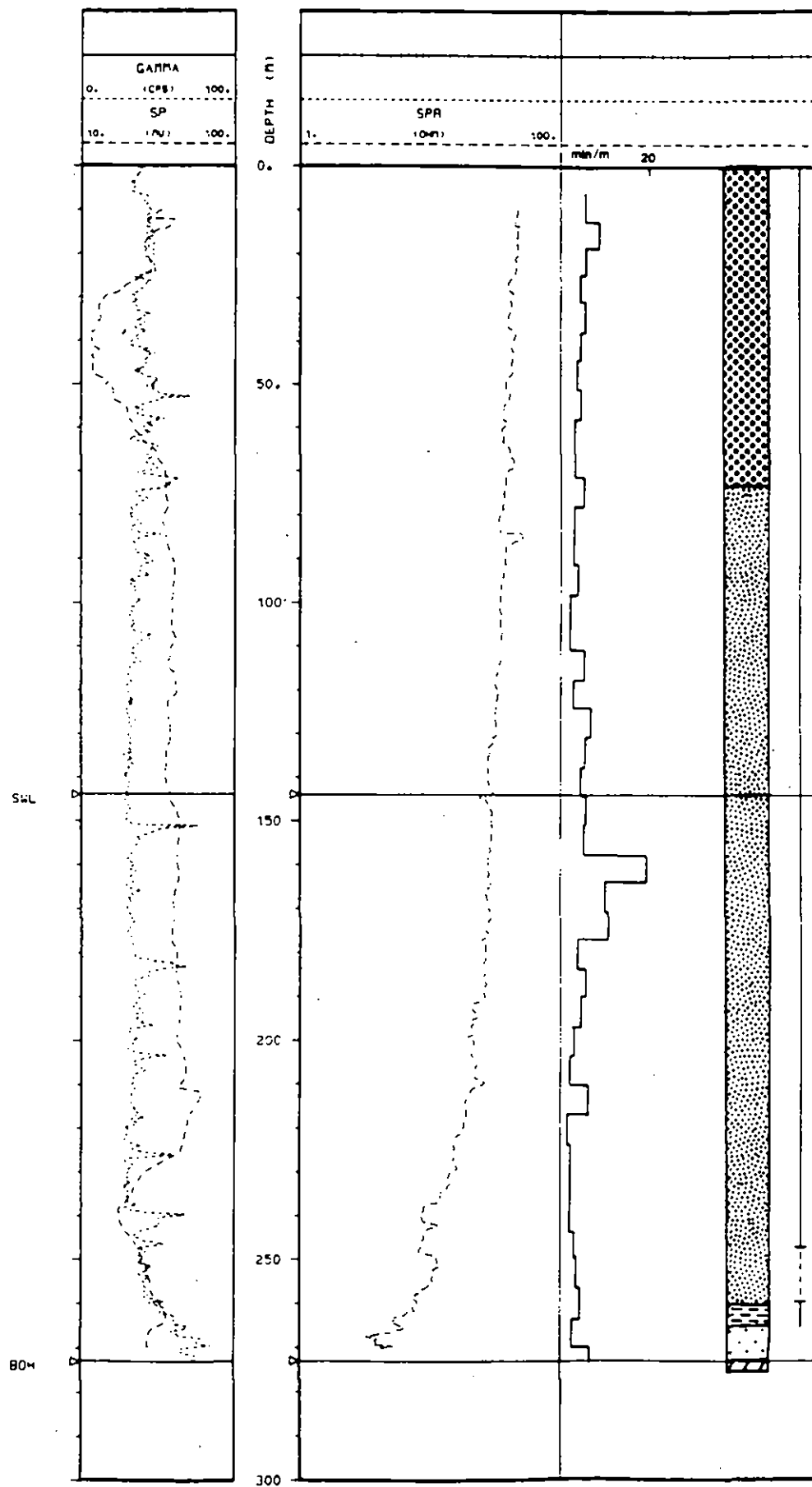
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E03
GRID REF	5591 2781
DATUM ELEVATION	98 MASL



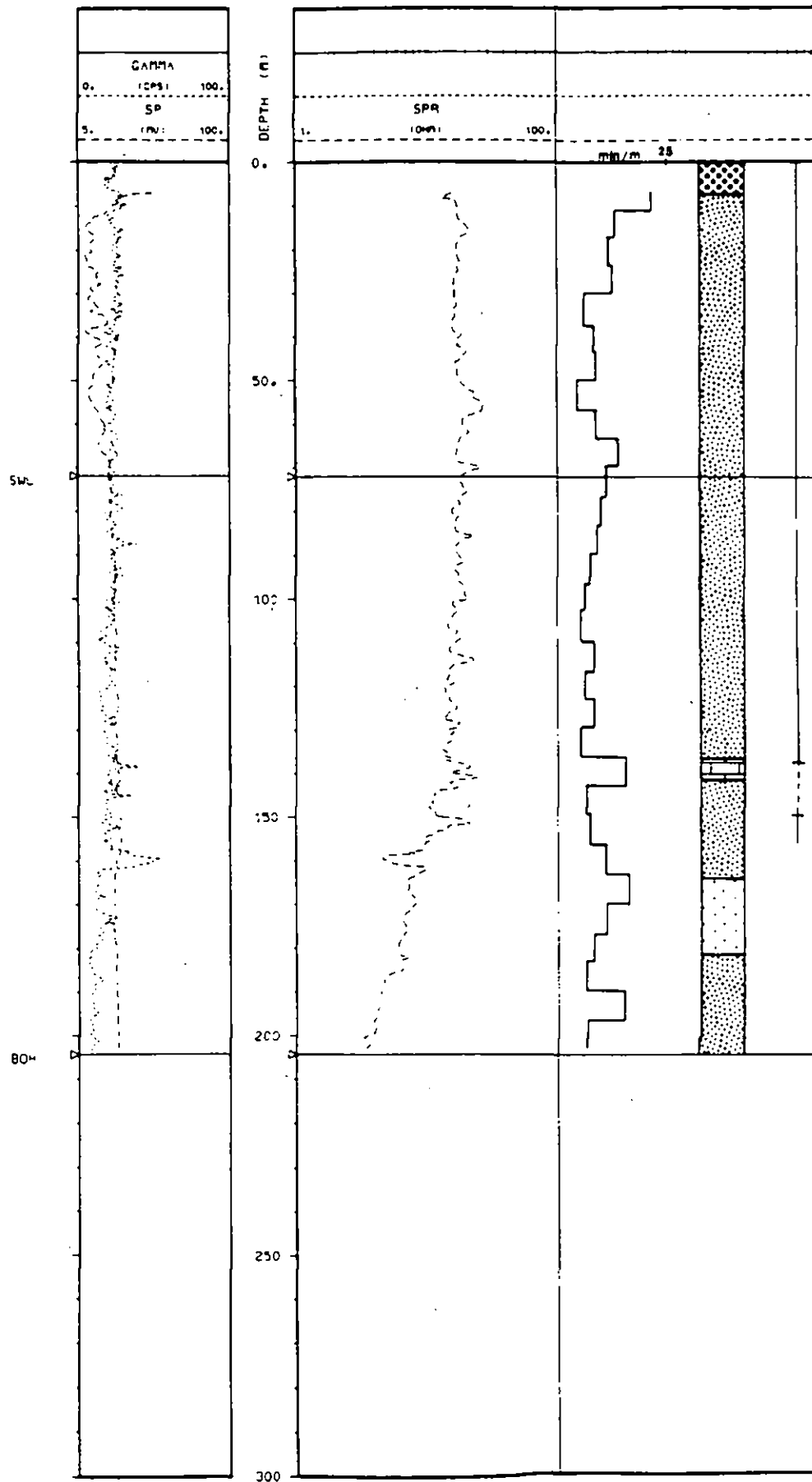
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E04
GRID REF	5563 2583
DATUM ELEVATION	155 MASL



PROJECT MUQDISHO WATER SUPPLY
 BOREHOLE EOS
 GRID REF 5654 2843
 DATUM ELEVATION 171 MASL



PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E06
GRID REF	5686 2385
DATUM ELEVATION	84 MASL

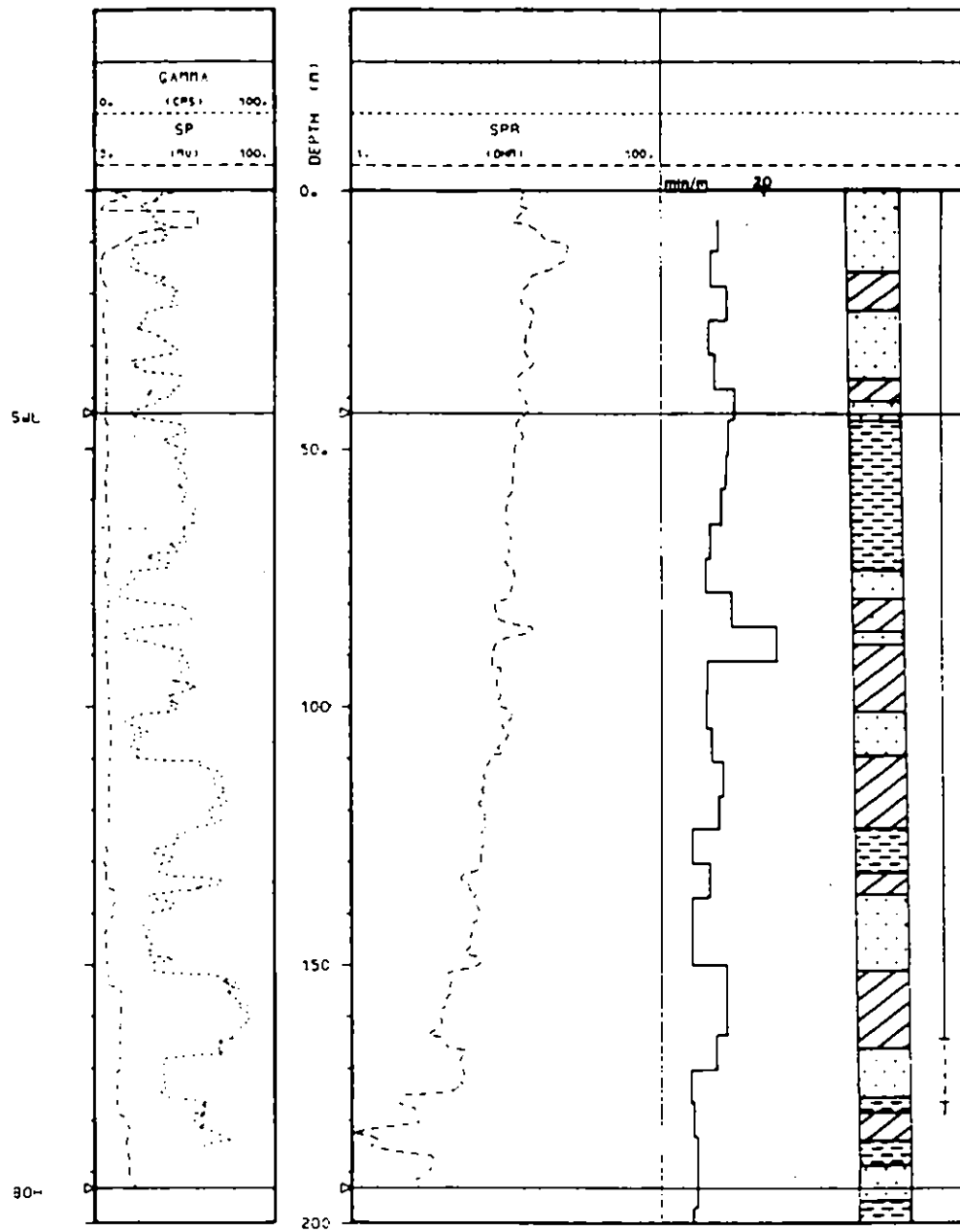


PROJECT MUQDISHO WATER SUPPLY

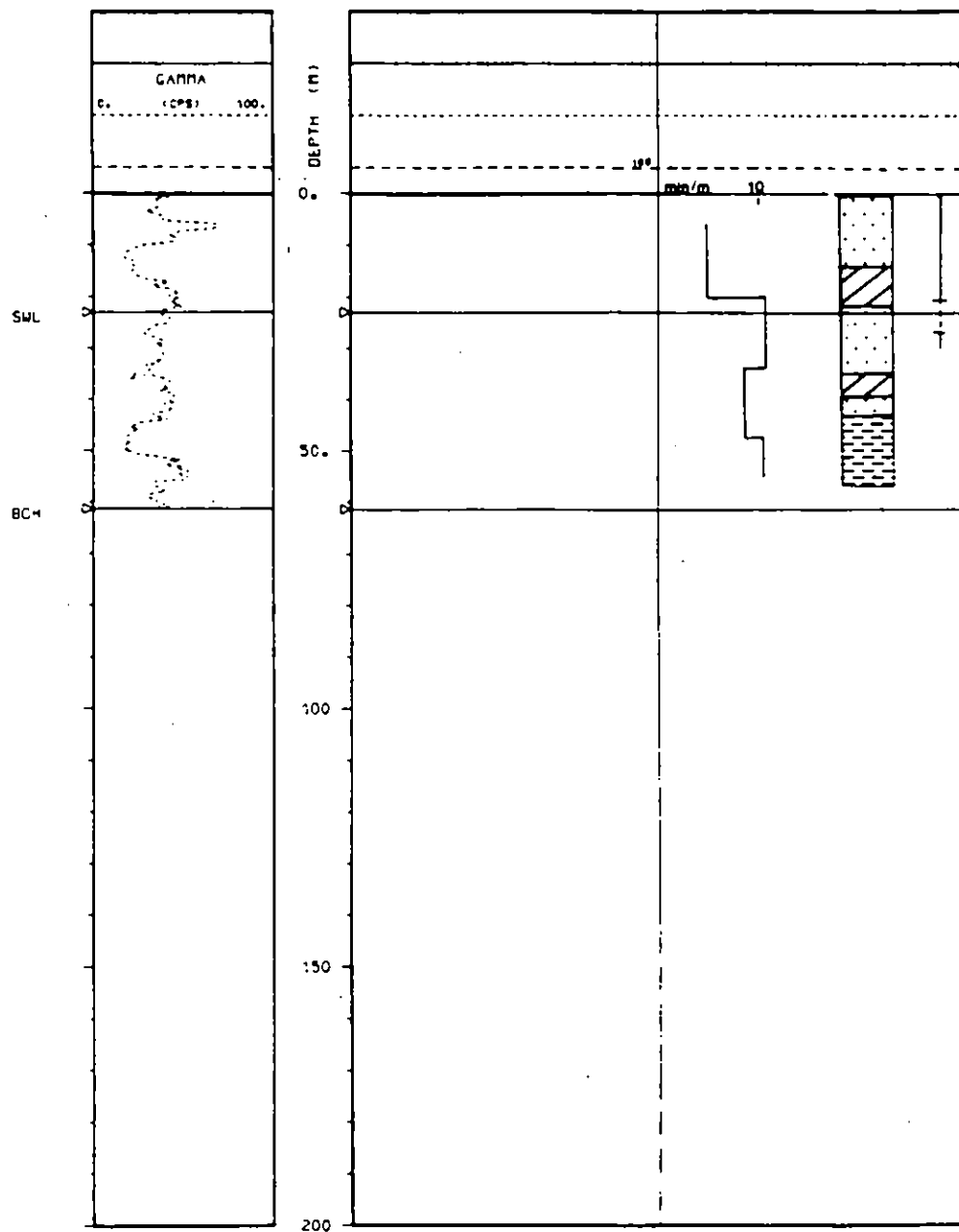
BOREHOLE E07

GRID REF 5343 2950

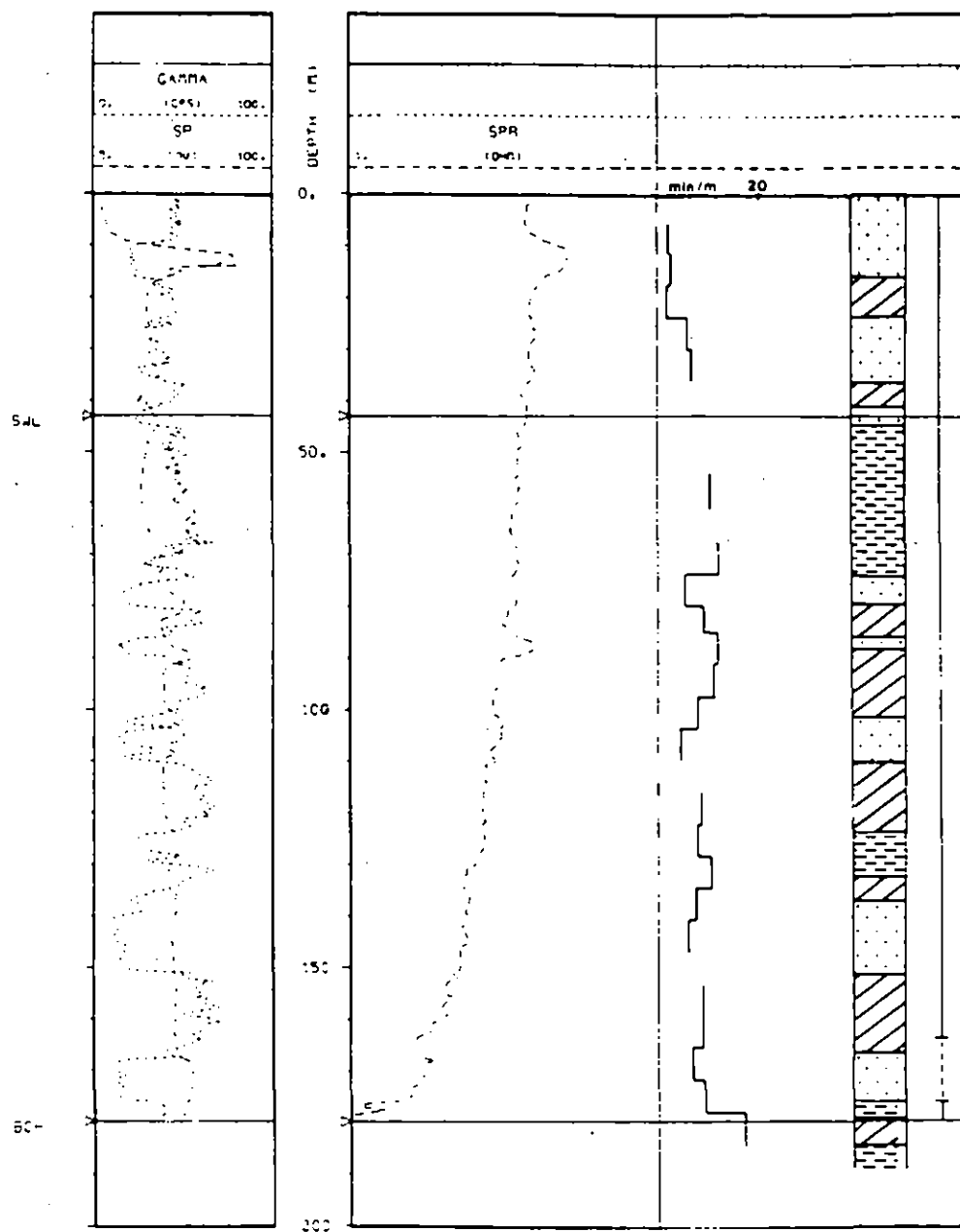
DATUM ELEVATION 103 MASL



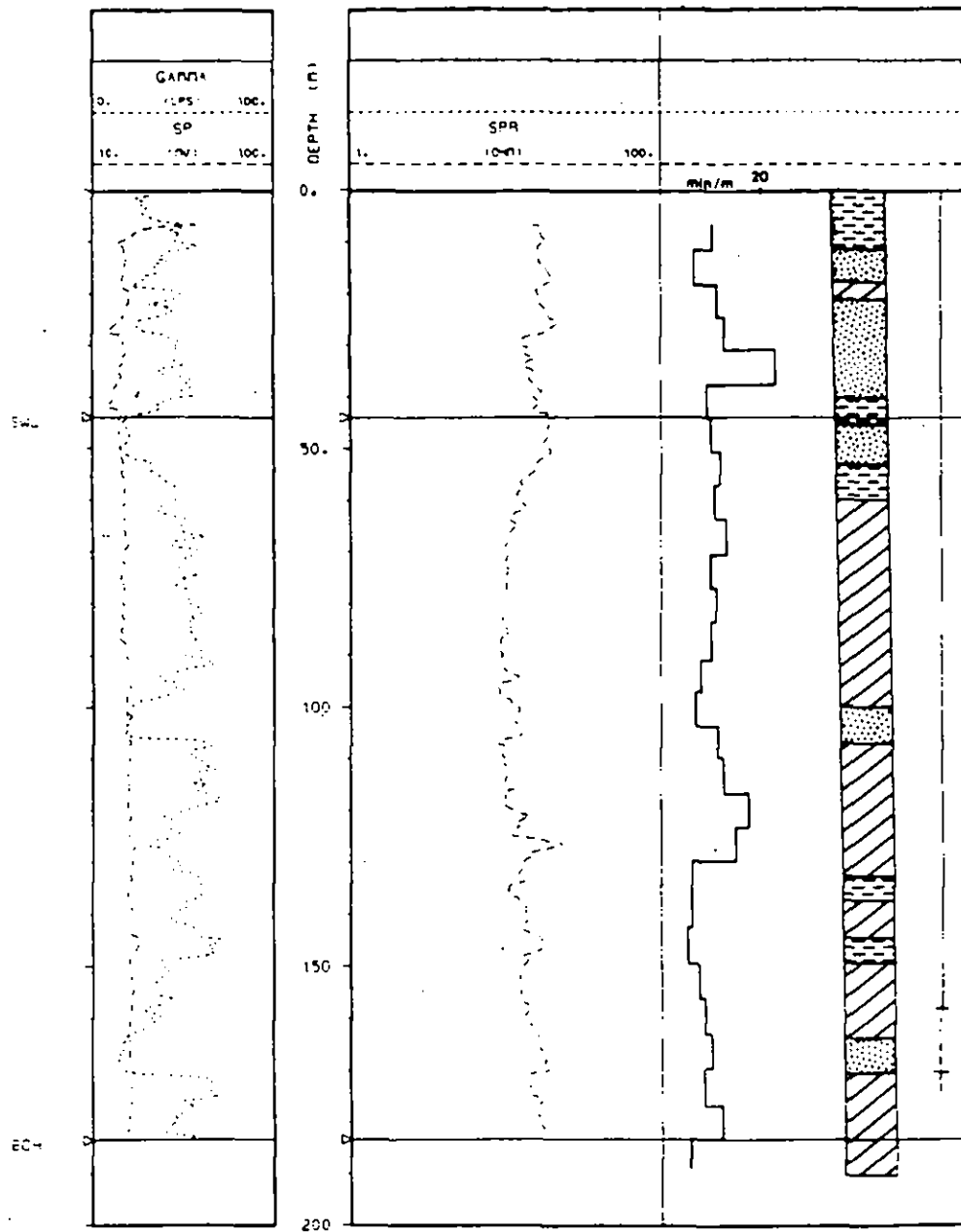
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E07A
GRID REF	5542 2850
DATUM ELEVATION	103.0 MASL



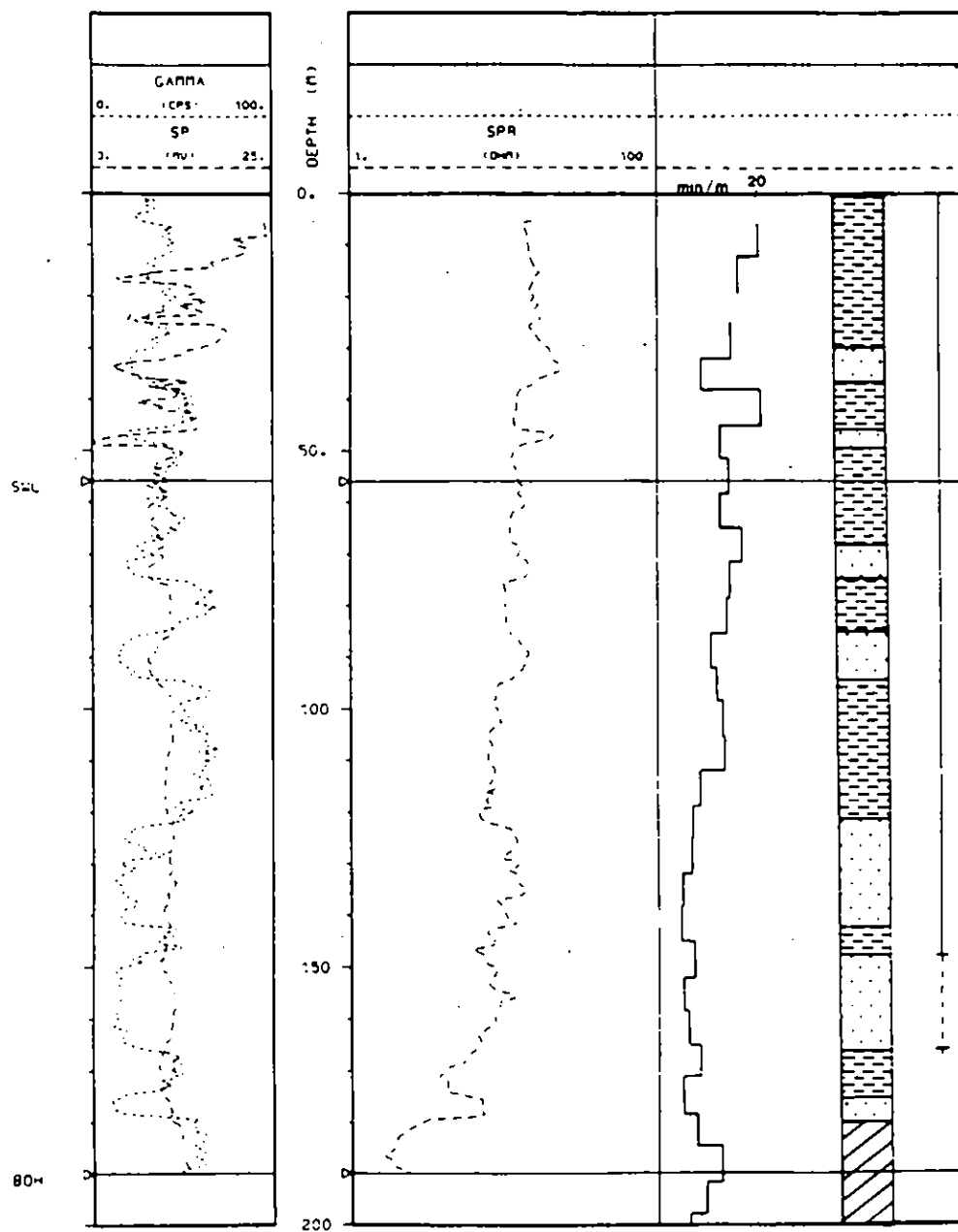
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E07TW
GRID REF	5543 2949
DATUM ELEVATION	103.0 MASL



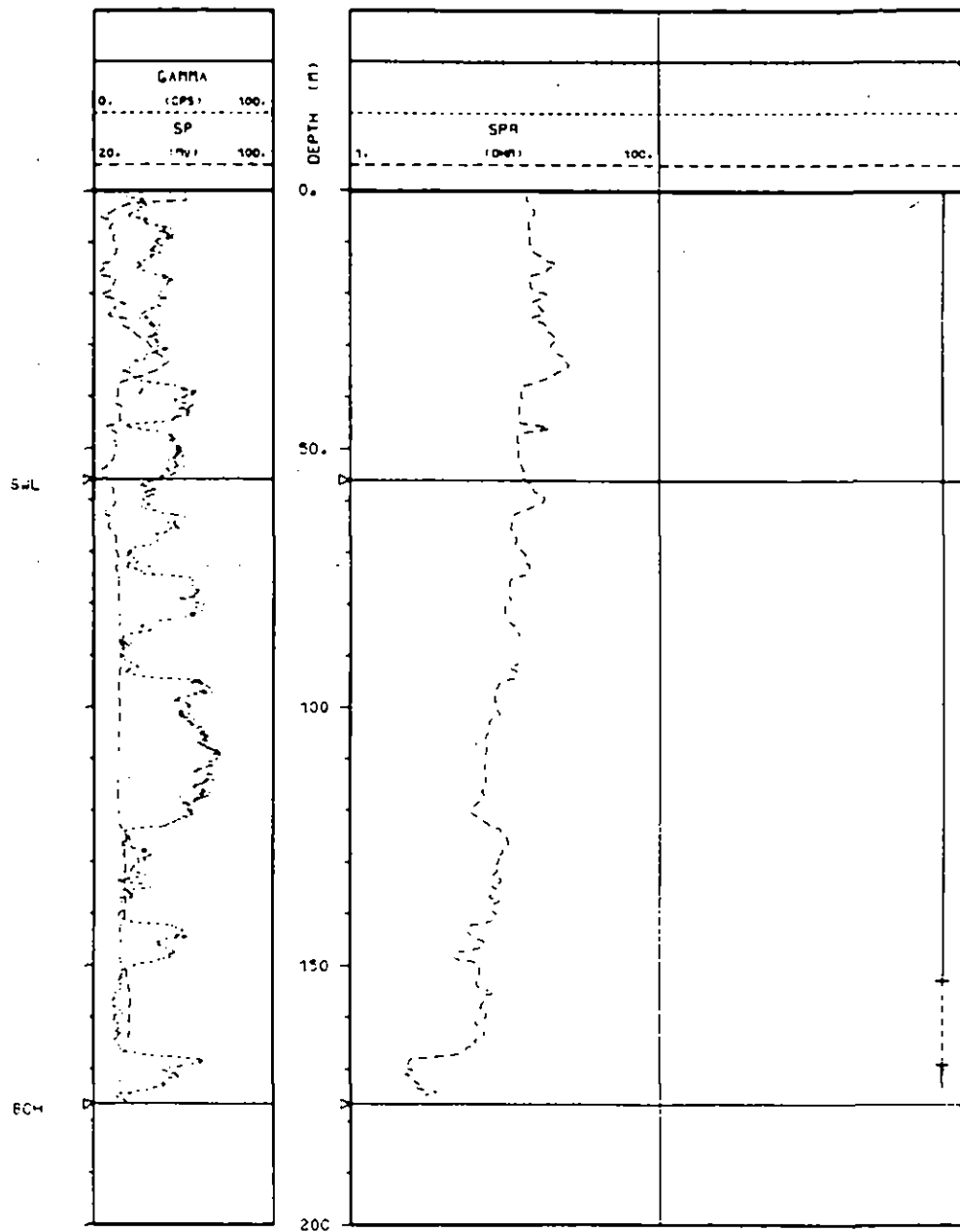
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E08
GRID REF	5490 2790
DATUM ELEVATION	98.0 MASL



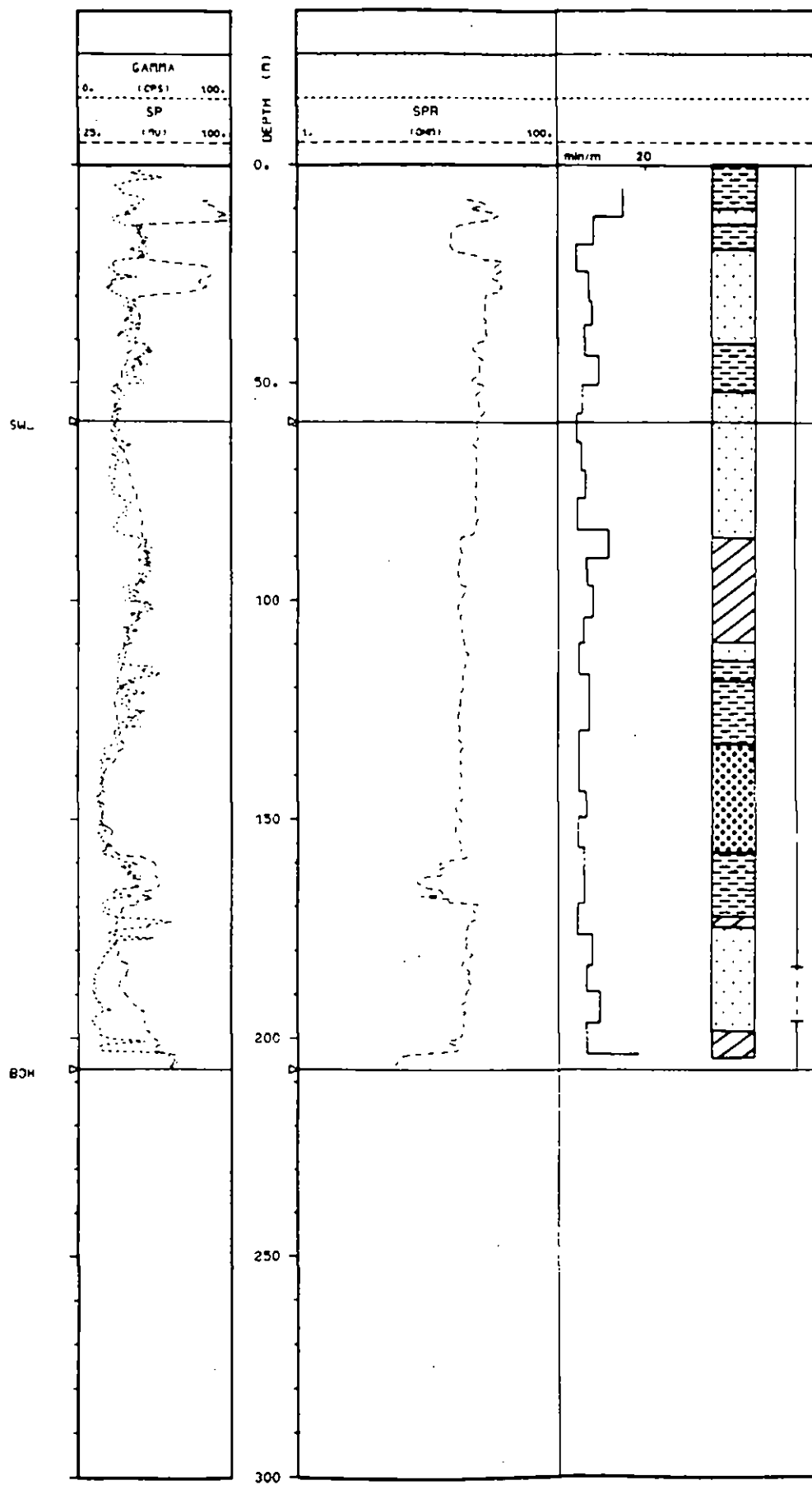
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E09
GRID REF	5281 2802
DATUM ELEVATION	92.0 MASL



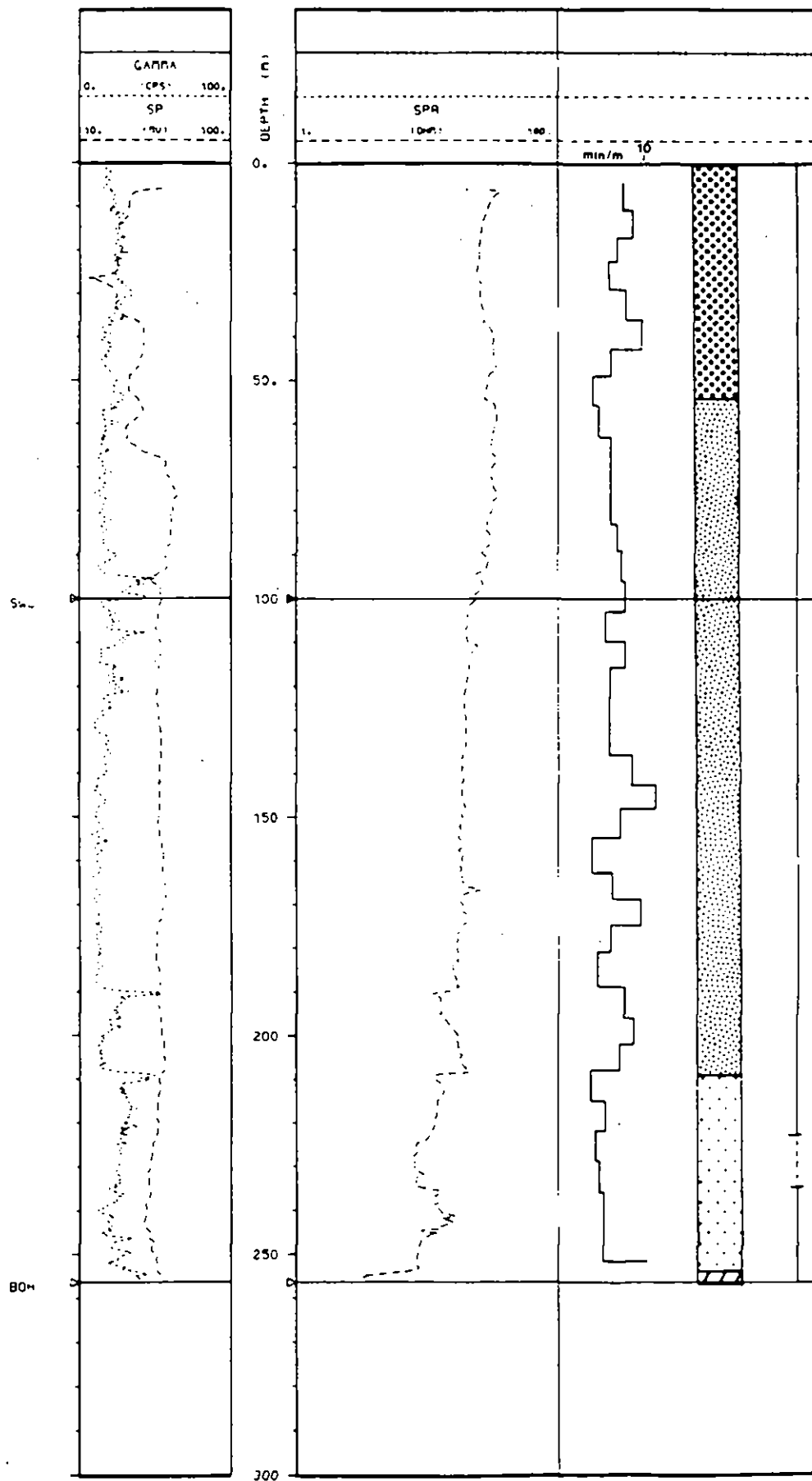
PROJECT	MUDDISHO WATER SUPPLY
BOREHOLE	E09TM
GRID REF	5280 2802
DATUM ELEVATION	92.0 MASL



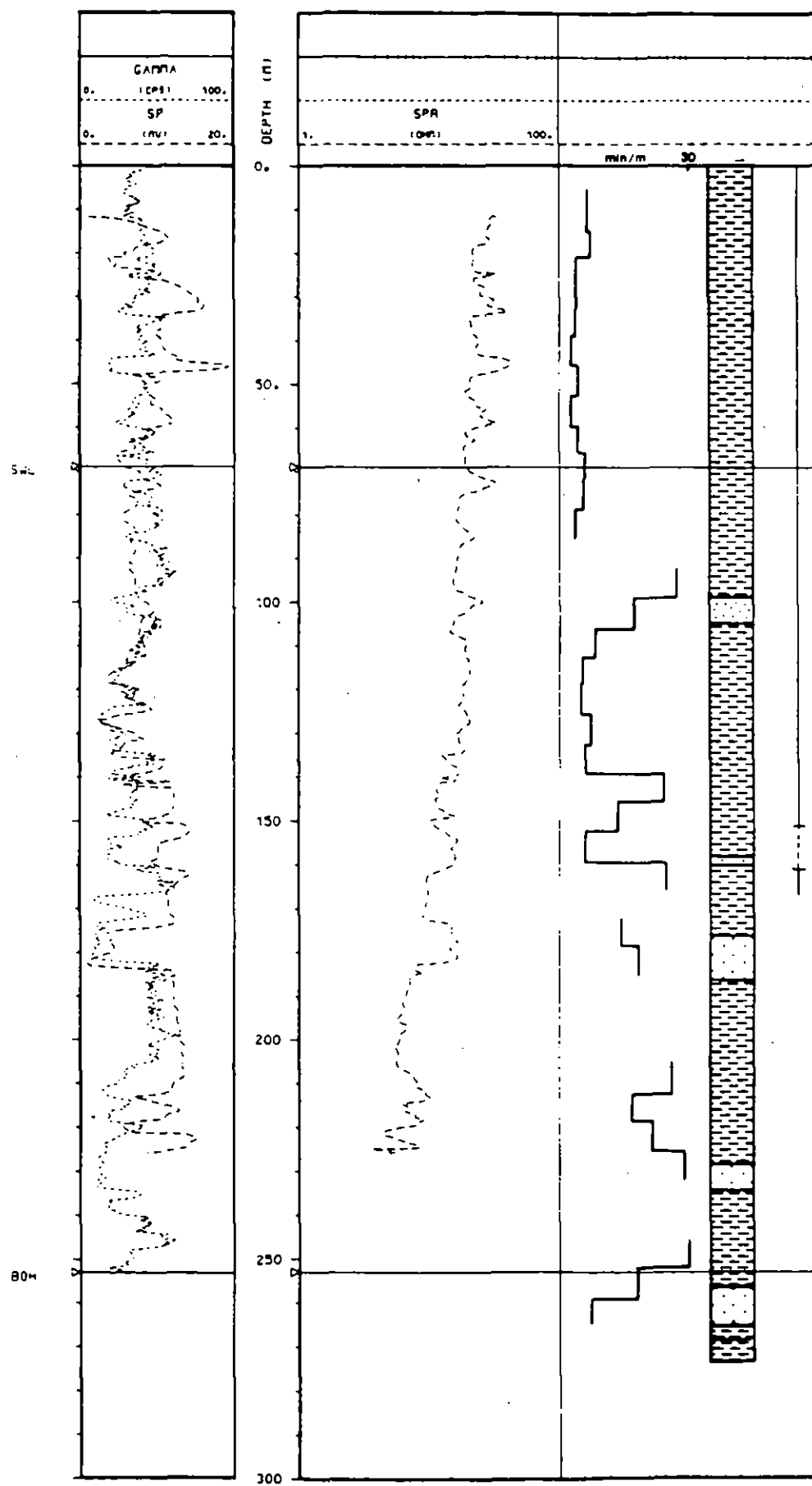
PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E010
GRID REF	5283 2549
DATUM ELEVATION	89.0 MASL



PROJECT	MUGDISHO WATER SUPPLY
BOREHOLE	E011
GRID REF	5509 2515
DATUM ELEVATION	131.0 MASL



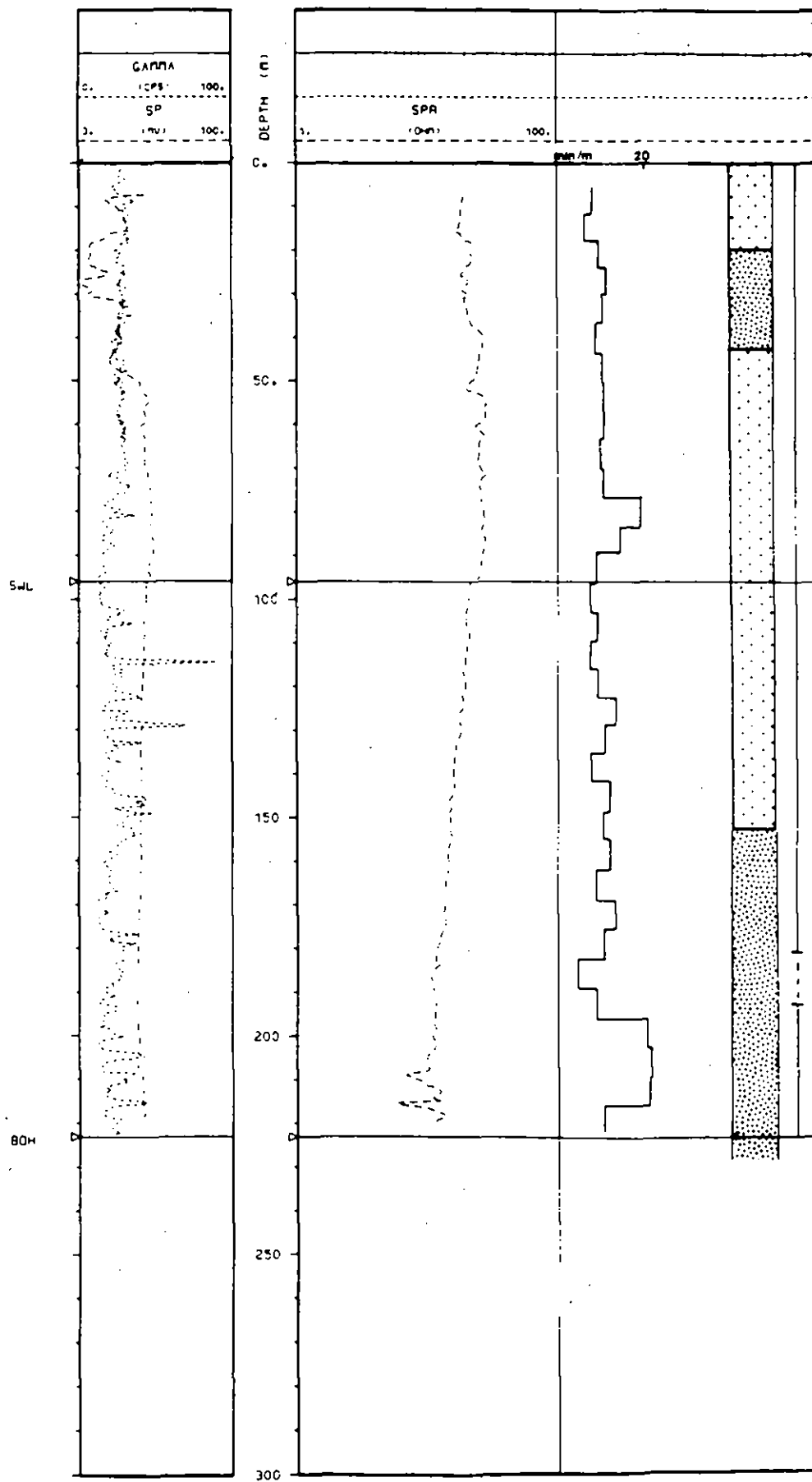
PROJECT MUDDISHO WATER SUPPLY
 BOREHOLE E012
 GRID REF 5028 2630
 DATUM ELEVATION 90.0 MASL



100.0 MABL



PROJECT	MUDISHO WATER SUPPLY
BOREHOLE	ED14
GRID REF	5069 2211
DATUM ELEVATION	106.0 MABL



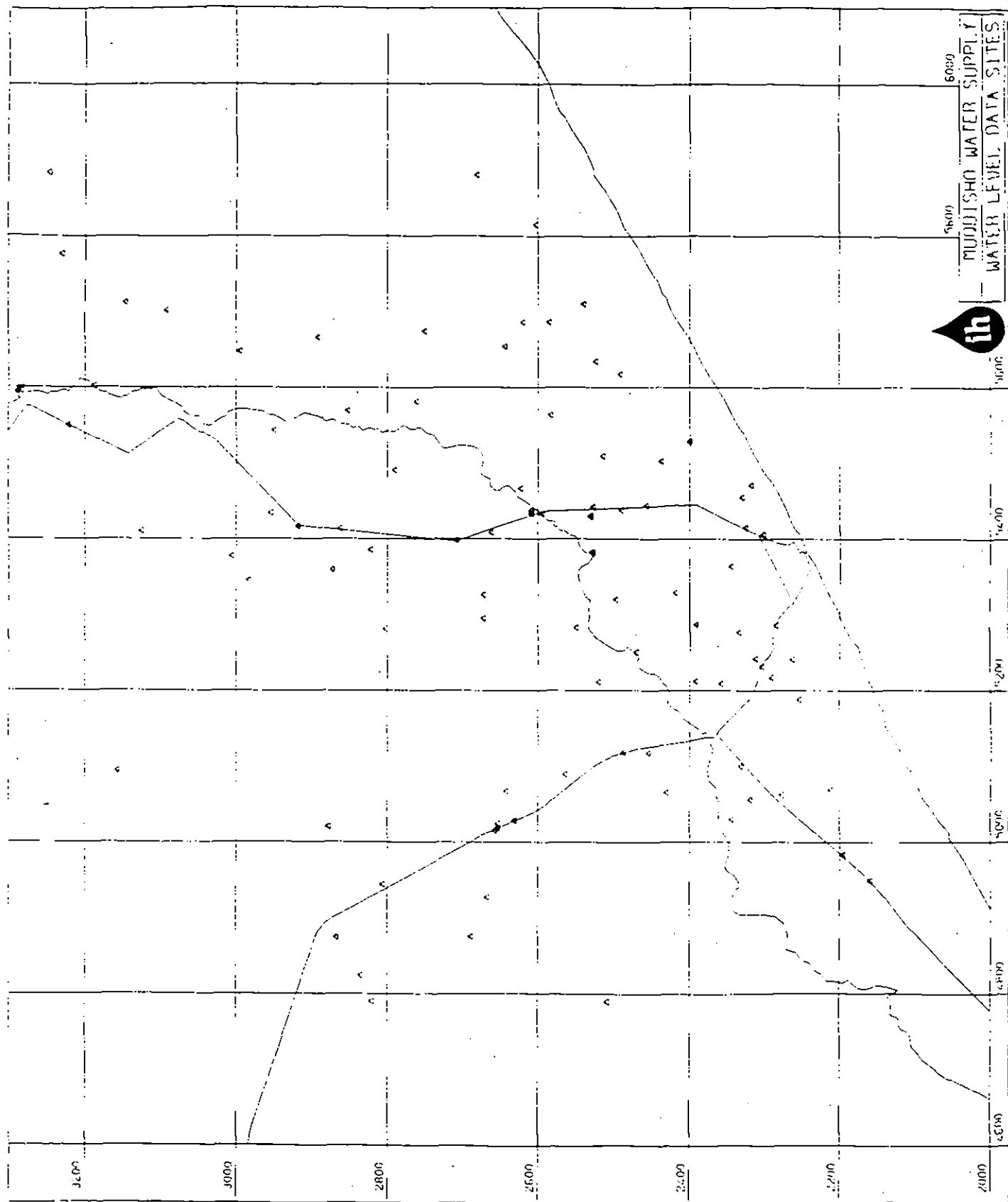


Figure A.2

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
47902508	54	1 OCT 82	56.000
47902820	97	1 OCT 82	55.000
48242835	96	1 OCT 82	57.000
48742868	98	1 OCT 82	52.000
48752689	95	1 OCT 82	57.900
49172481	49	1 OCT 82	70.000
49272667	51	1 OCT 82	62.000
49442806	111	1 OCT 82	61.870
49492159	60	1 OCT 82	62.000
49832195	59	1 OCT 82	63.000
49842195	58	1 OCT 82	63.000
50152656	101	1 OCT 82	64.000
50182652	99	1 OCT 82	66.000
50202878	50	1 OCT 82	56.000
50242652	69	1 OCT 82	67.000
50282630	ED 12	28 NOV 83	69.138
50302341	113	1 OCT 82	45.600
50562316	116	1 OCT 82	59.600
50622275	57	1 OCT 82	61.000
50652430	80	1 OCT 82	61.000
50672641	81	1 OCT 82	68.000

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
50692211	EO 14	30 JUL 83	95.810
		17 AUG 83	95.798
		14 NOV 83	95.978
50892564	110	1 OCT 82	69.370
50943156	52	1 OCT 82	46.000
51002329	56	1 OCT 82	57.000
51172454	79	1 OCT 82	62.000
51182486	3	1 OCT 82	63.590
51882252	OW 4	7 JUL 83	133.750
		17 AUG 83	133.733
		29 AUG 83	133.728
52112520	78	1 OCT 82	60.300
52172289	OW 5	17 AUG 83	124.849
		29 AUG 83	124.852
52322302	MGQ2P	20 AUG 83	130.010
		4 SEP 83	130.018
		30 SEP 83	130.038
		29 OCT 83	130.044
		29 NOV 83	130.055
		10 JAN 84	129.993
52412262	GW 6	14 AUG 83	118.650
		3 SEP 83	118.678
		9 OCT 83	118.650
52422310	OW1	12 MAR 83	131.660
		23 JUN 83	131.710
52802802	EO 9TW	10 DEC 83	55.860
		11 DEC 83	55.910

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
52812802	EO 9	8 MAR 83	55.900
		22 MAR 83	55.900
		10 JUL 83	55.900
		30 AUG 83	55.886
		10 DEC 83	55.866
		11 DEC 83	55.922
52832549	EO 10	2 SEP 83	58.888
		10 OCT 83	58.878
52952672	75	1 OCT 82	62.000
53262672	73	1 OCT 82	62.000
53452983	67	1 OCT 82	54.000
53592873	77	1 OCT 82	45.000
53773006	66	1 OCT 82	40.000
53812528	MGQ6T	19 SEP 82	58.459
		2 OCT 82	58.431
		27 NOV 82	58.333
		26 JAN 83	58.665
		27 MAR 83	58.880
		18 APR 83	58.930
		14 MAY 83	58.920
		12 JUN 83	58.756
		9 JUL 83	58.644
		6 AUG 83	58.712
		30 AUG 83	58.645
		28 SEP 83	58.621
		26 OCT 83	58.595
		27 OCT 83	58.453
		26 NOV 83	58.552
		15 JAN 84	58.644
53852822	72	1 OCT 82	55.000
53982708	48	1 OCT 82	54.000
54082661	55	1 OCT 82	44.000

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
54103124	12	1 OCT 82	44.000
54132862	70	1 OCT 82	54.000
54152322	MGQ3CP	6 DEC 83	62.308
54162918	EO 13	3 APR 83	50.952
		5 JUL 83	50.950
		9 AUG 83	50.929
54292530	9	1 OCT 82	95.000
54302530	18	1 OCT 82	95.000
54332594	21	1 OCT 82	48.000
54332608	14	1 OCT 82	46.000
54342954	16	1 OCT 82	45.000
54372608	17	1 OCT 82	46.000
54382490	7	1 OCT 82	135.600
54422527	10	1 OCT 82	110.200
54552327	MGQ2CP	6 DEC 83	32.745
54662622	19	1 OCT 82	48.000
54902790	EO 8	23 APR 83	43.970
		10 JUL 83	43.900
		27 AUG 83	43.798
55092515	EO 11	10 OCT 83	100.350
55282400	86	1 OCT 82	25.400

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
55422950	EO 7A	2 MAR 83	23.300
		3 APR 83	23.213
		10 JUL 83	23.250
		31 JUL 83	23.226
		31 DEC 83	23.117
		2 JAN 84	23.118
55432949	EO 7TW	31 DEC 83	43.670
		2 JAN 84	43.060
55432950	EO 7	28 FEB 83	43.300
		3 APR 83	43.184
		5 JUL 83	43.050
		31 JUL 83	43.042
		31 DEC 83	43.295
		2 JAN 84	43.355
55503221	84	1 OCT 82	23.600
55632583	EO 4	7 JUN 83	124.200
		31 JUL 83	124.050
		1 SEP 83	124.088
55692853	20	25 OCT 82	19.630
		27 MAR 83	18.570
		22 APR 83	18.540
		25 MAY 83	18.480
		21 JUN 83	18.350
		18 JUL 83	18.153
		15 AUG 83	18.022
		30 AUG 83	17.902
		28 SEP 83	17.658
		26 OCT 83	17.380
		26 NOV 83	17.055
		3 JAN 84	16.850
55812761	EO 3	7 JUN 83	42.678
		31 JUL 83	41.840
		27 NOV 83	34.095
55943288	61	1 OCT 82	21.000

MUQDISHU WATER SUPPLY
DEPTH TO WATER LISTING
ALL THE DATA

GRID REF	SITE NO	DATE	DEPTH TO WATER (METRES)
55953283	82	1 OCT 82	6.500
56023187	8	1 OCT 82	21.634
56172492	92	1 OCT 82	29.000
56342524	93	1 OCT 82	49.000
56472995	EO 1	19 FEB 83	33.890
		3 APR 83	34.030
		5 JUL 83	34.000
		9 AUG 83	33.948
56542643	EO 5	20 APR 83	144.400
		4 MAY 83	144.460
		31 JUL 83	144.440
56662893	41	1 OCT 82	55.000
56742750	EO 2	7 JUN 83	165.591
		10 OCT 83	163.400
56862585	EO 6	2 MAY 83	71.560
		16 MAY 83	71.560
56862619	45	1 OCT 82	22.000
57013091	53	1 OCT 82	60.000
57102539	87	1 OCT 82	27.450
57123146	62	1 OCT 82	55.000
57763230	63	1 OCT 82	60.000
58152602	1	1 OCT 82	37.700
58802681	2	1 OCT 82	48.600
58833246	117	1 OCT 82	62.000

B. PUMPING TESTS

APPENDIX B AQUIFER TESTS

Constant discharge pumping tests were carried out at sites of E07 and E09 on the alluvium and one at PW21 in the Afgooye Road Wellfield. Step drawdown tests were carried out at all three sites and at each production borehole on the wellfield.

Figure B.1 shows the three sites and also the locations of the pumping tests reported on in 1980 and referred to in Chapter 5 of the main report.

This appendix presents the data in the form of time drawdown listings and in a graphical form for the alluvial sites and PW21 only. The step tests for the wellfield are given in the 1983 Stage IIA wellfield report.

All pumping rates are in cubic metres per day and time in minutes. The rest water level is given at the start of each test.

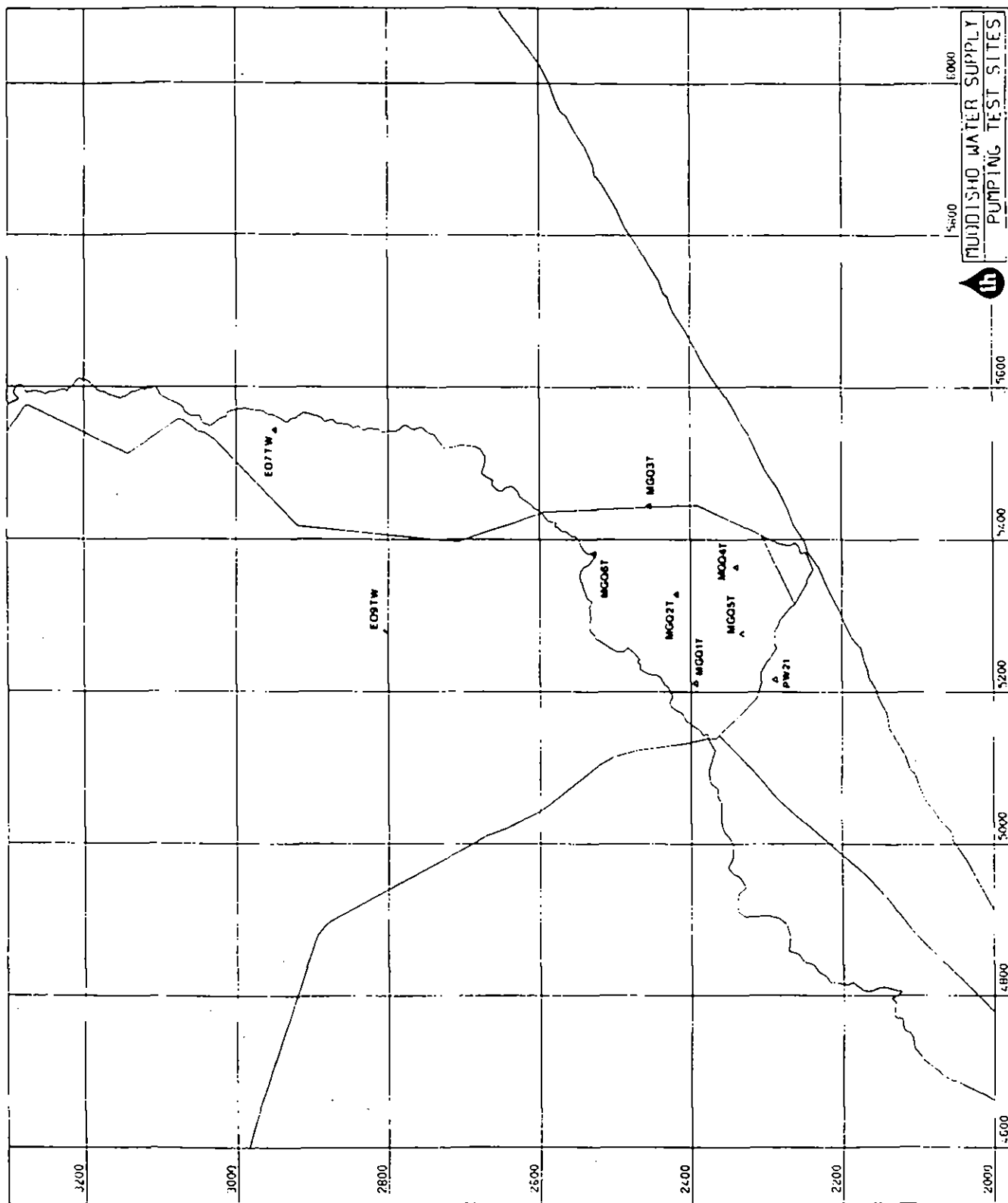
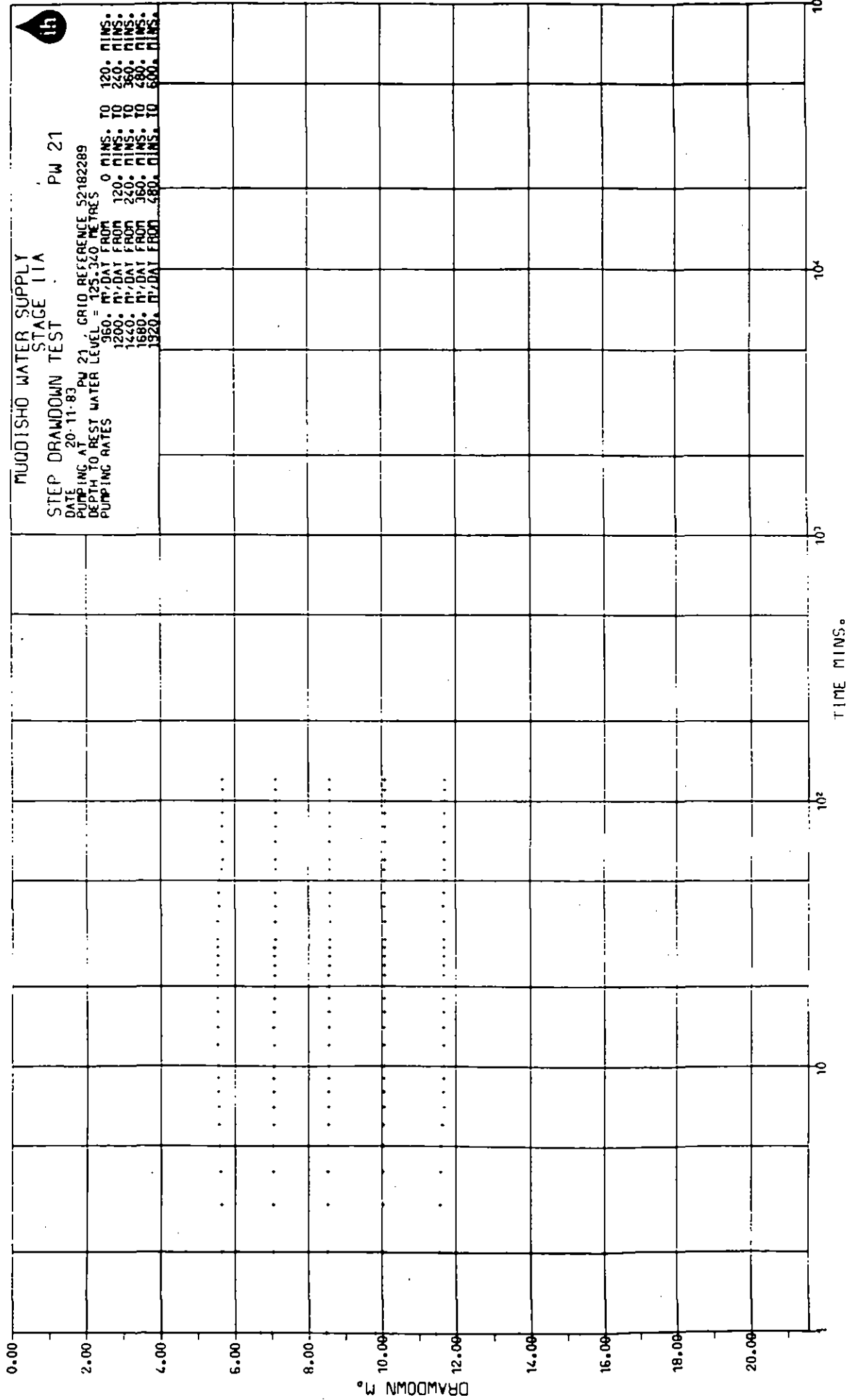


Figure B.1



MUQDISHO WATER SUPPLY

STAGE IIA

STEP DRAWDOWN TEST -

PUMPED WELL

PUMPING AT

PW 21 GRID REF. 52182289

DATE OF TEST

20 11 83

PUMPING RATES (M**3/DAY) :

960.0 FROM	0.0 MINS TO	120.0 MINS
1200.0 FROM	120.0 MINS TO	240.0 MINS
1440.0 FROM	240.0 MINS TO	360.0 MINS
1680.0 FROM	360.0 MINS TO	480.0 MINS
1920.0 FROM	480.0 MINS TO	600.0 MINS

REST WATER LEVEL 125.340 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	6.670	125.0	7.040
2.0	5.640	126.0	7.050
3.0	5.640	127.0	7.050
4.0	5.610	128.0	7.050
5.0	5.590	129.0	7.050
6.0	5.570	130.0	7.050
7.0	5.560	132.0	7.060
8.0	5.550	134.0	7.050
9.0	5.550	136.0	7.060
10.0	5.550	138.0	7.070
12.0	5.530	140.0	7.070
14.0	5.540	142.0	7.070
16.0	5.540	144.0	7.070
18.0	5.530	146.0	7.060
20.0	5.530	148.0	7.060
22.0	5.530	150.0	7.080
24.0	5.530	155.0	7.080
26.0	5.540	160.0	7.100
28.0	5.530	165.0	7.090
30.0	5.530	170.0	7.100
35.0	5.530	175.0	7.100
40.0	5.580	180.0	7.100
45.0	5.560	190.0	7.100
50.0	5.590	200.0	7.100
55.0	5.640	210.0	7.100
60.0	5.670	220.0	7.100
70.0	5.660	230.0	7.100
80.0	5.660	240.0	7.100
90.0	5.660	241.0	8.470
100.0	5.670	242.0	8.520
110.0	5.670	243.0	8.520
120.0	5.660	244.0	8.520
121.0	6.980	245.0	8.530
122.0	7.040	246.0	8.540
123.0	7.040	247.0	8.540
124.0	7.040	248.0	8.540

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

STEP DRAWDOWN TEST -

PUMPED WELL

PUMPING AT

PW 21 GRID REF. 52182289

DATE OF TEST

20 11 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
249.0	8.540	388.0	10.070
250.0	8.540	390.0	10.080
252.0	8.550	395.0	10.080
254.0	8.550	400.0	10.080
256.0	8.550	405.0	10.080
258.0	8.550	410.0	10.080
260.0	8.550	415.0	10.070
262.0	8.540	420.0	10.080
264.0	8.560	430.0	10.080
266.0	8.560	440.0	10.080
268.0	8.560	450.0	10.080
270.0	8.570	460.0	10.080
275.0	8.570	470.0	10.080
280.0	8.570	480.0	10.080
285.0	8.580	481.0	11.440
290.0	8.570	482.0	11.560
295.0	8.570	483.0	11.570
300.0	8.570	484.0	11.580
310.0	8.570	485.0	11.590
320.0	8.570	486.0	11.630
330.0	8.570	487.0	11.680
340.0	8.570	488.0	11.660
350.0	8.570	489.0	11.670
360.0	8.570	490.0	11.670
361.0	9.800	492.0	11.670
362.0	10.010	494.0	11.670
363.0	10.020	496.0	11.670
364.0	10.020	498.0	11.670
365.0	10.040	500.0	11.670
366.0	10.040	502.0	11.670
367.0	10.060	504.0	11.670
368.0	10.050	506.0	11.670
369.0	10.060	508.0	11.670
370.0	10.060	510.0	11.670
372.0	10.060	515.0	11.670
374.0	10.060	520.0	11.670
376.0	10.070	525.0	11.690
378.0	10.070	530.0	11.690
380.0	10.070	535.0	11.700
382.0	10.070	540.0	11.700
384.0	10.070	550.0	11.690
386.0	10.070	560.0	11.690

(CONTINUED)

MUQDISHO WATER SUPPLY

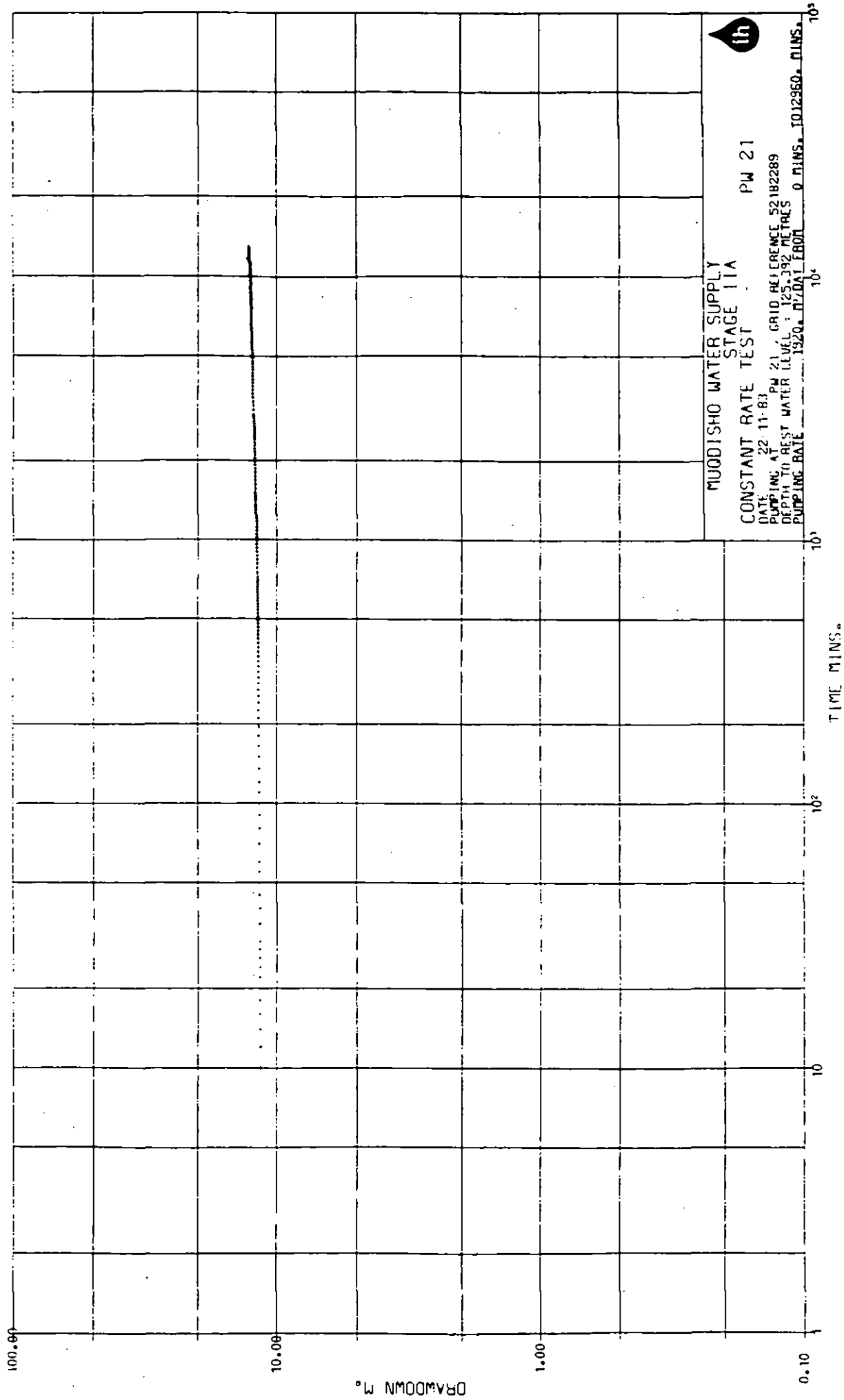
STAGE IIA

STEP DRAWDOWN TEST - PUMPED WELL

PUMPING AT PW 21 GRID REF. 52182289

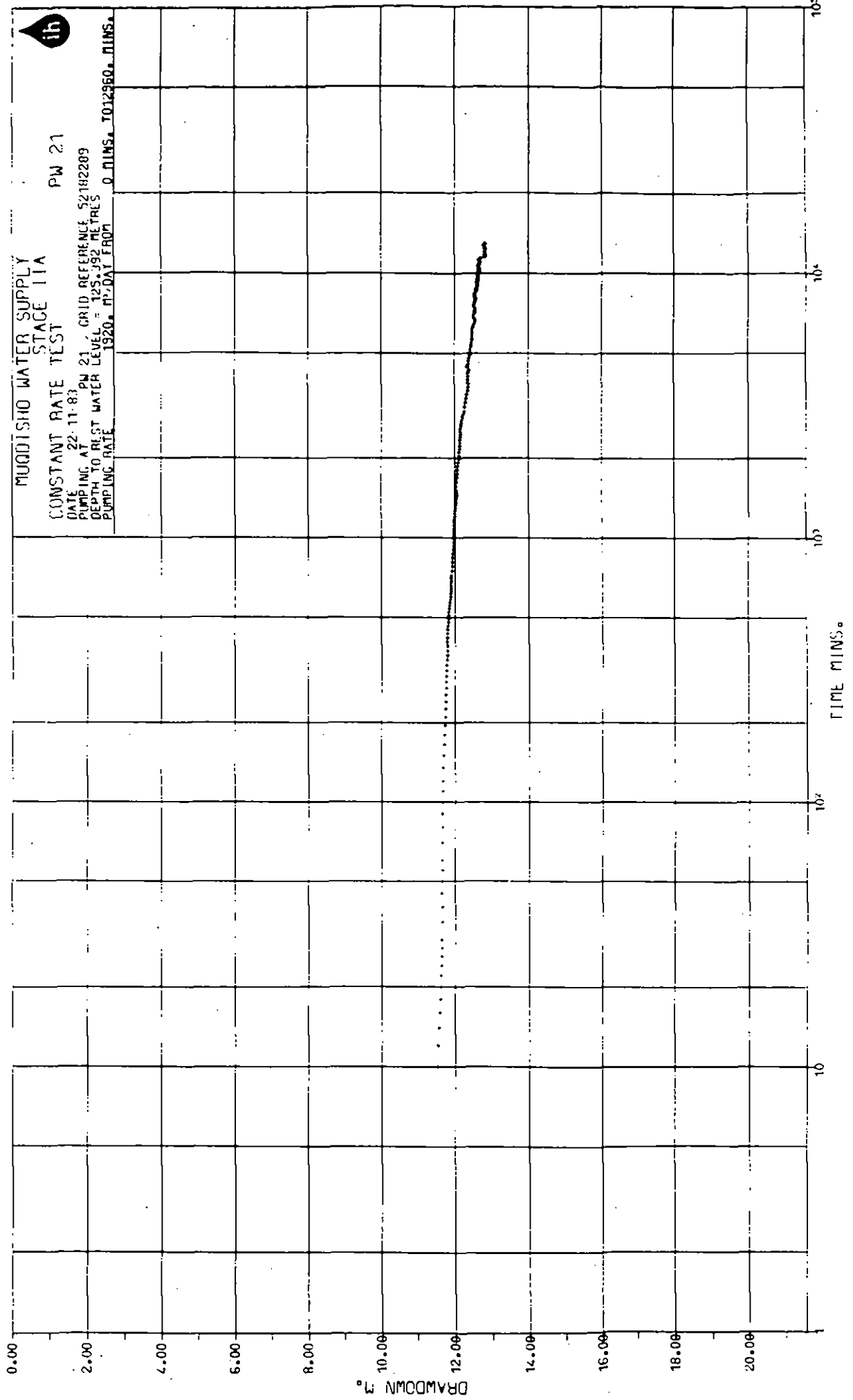
DATE OF TEST 20 11 83

TIME(MINS)	DRAWDOWN(M)
570.0	11.690
580.0	11.700
590.0	11.700
600.0	11.700



MUDDISHO WATER SUPPLY
STAGE 11A
CONSTANT RATE TEST
DATE 22-11-83
PUMPING AT PW 21
DEPTH TO REST WATER LEVEL 125.392 METRES
PUMPING RATE 1920 L/DAL FROM 0 MINS. TO 0 MINS. ID12960. MINS.





MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST -

PUMPED WELL

PUMPING AT

PW 21 GRID REF. 52182289

DATE OF TEST

22 11 83

PUMPING RATES (M**3/DAY) :

1920.0 FROM 0.0 MINS TO 12960.0 MINS

REST WATER LEVEL 125.392 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
10.0	11.530	360.0	11.780
12.0	11.530	375.0	11.780
14.0	11.570	390.0	11.780
16.0	11.590	405.0	11.780
18.0	11.600	420.0	11.790
20.0	11.610	435.0	11.790
22.0	11.610	450.0	11.790
24.0	11.620	465.0	11.800
26.0	11.630	480.0	11.810
28.0	11.630	495.0	11.820
30.0	11.630	510.0	11.820
35.0	11.640	525.0	11.820
40.0	11.640	540.0	11.830
45.0	11.640	555.0	11.840
50.0	11.650	570.0	11.850
55.0	11.650	585.0	11.860
60.0	11.640	600.0	11.880
70.0	11.650	615.0	11.880
80.0	11.650	630.0	11.880
90.0	11.650	645.0	11.880
100.0	11.650	660.0	11.880
110.0	11.660	675.0	11.880
120.0	11.660	690.0	11.890
135.0	11.680	705.0	11.890
150.0	11.690	720.0	11.890
165.0	11.710	750.0	11.910
180.0	11.710	780.0	11.920
195.0	11.720	810.0	11.920
210.0	11.730	840.0	11.920
225.0	11.740	870.0	11.930
240.0	11.740	900.0	11.940
255.0	11.740	930.0	11.950
270.0	11.750	960.0	11.950
285.0	11.750	990.0	11.960
300.0	11.750	1020.0	11.950
315.0	11.760	1050.0	11.950
330.0	11.760	1080.0	11.950
345.0	11.770	1110.0	11.950

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST -

PUMPED WELL

PUMPING AT

PW 21 GRID REF. 52182289

DATE OF TEST

22 11 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1140.0	11.950	3600.0	12.340
1170.0	11.960	3720.0	12.350
1200.0	11.980	3840.0	12.360
1230.0	11.990	3960.0	12.350
1260.0	12.010	4080.0	12.360
1290.0	12.020	4200.0	12.350
1320.0	12.020	4320.0	12.390
1350.0	12.030	4440.0	12.330
1380.0	12.030	4560.0	12.370
1410.0	12.040	4680.0	12.370
1440.0	12.060	4800.0	12.390
1470.0	12.040	4920.0	12.410
1500.0	12.040	5040.0	12.410
1560.0	12.030	5160.0	12.410
1620.0	12.040	5280.0	12.430
1680.0	12.060	5400.0	12.440
1740.0	12.070	5520.0	12.450
1800.0	12.060	5640.0	12.470
1860.0	12.070	5760.0	12.460
1920.0	12.090	5880.0	12.460
1980.0	12.100	6000.0	12.470
2040.0	12.110	6120.0	12.460
2100.0	12.110	6240.0	12.490
2160.0	12.120	6360.0	12.500
2220.0	12.130	6480.0	12.530
2280.0	12.130	6600.0	12.540
2340.0	12.130	6720.0	12.540
2400.0	12.140	6840.0	12.490
2460.0	12.150	6960.0	12.500
2520.0	12.140	7080.0	12.540
2580.0	12.140	7200.0	12.540
2640.0	12.150	7320.0	12.550
2700.0	12.170	7440.0	12.530
2760.0	12.170	7560.0	12.510
2820.0	12.190	7680.0	12.530
2880.0	12.200	7800.0	12.540
2940.0	12.230	7920.0	12.560
3000.0	12.250	8040.0	12.570
3120.0	12.260	8160.0	12.530
3240.0	12.280	8280.0	12.540
3360.0	12.300	8400.0	12.540
3480.0	12.310	8520.0	12.570

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST -

PUMPED WELL

PUMPING AT

PW 21 GRID REF. 52182289

DATE OF TEST

22 11 83

TIME(MINS)

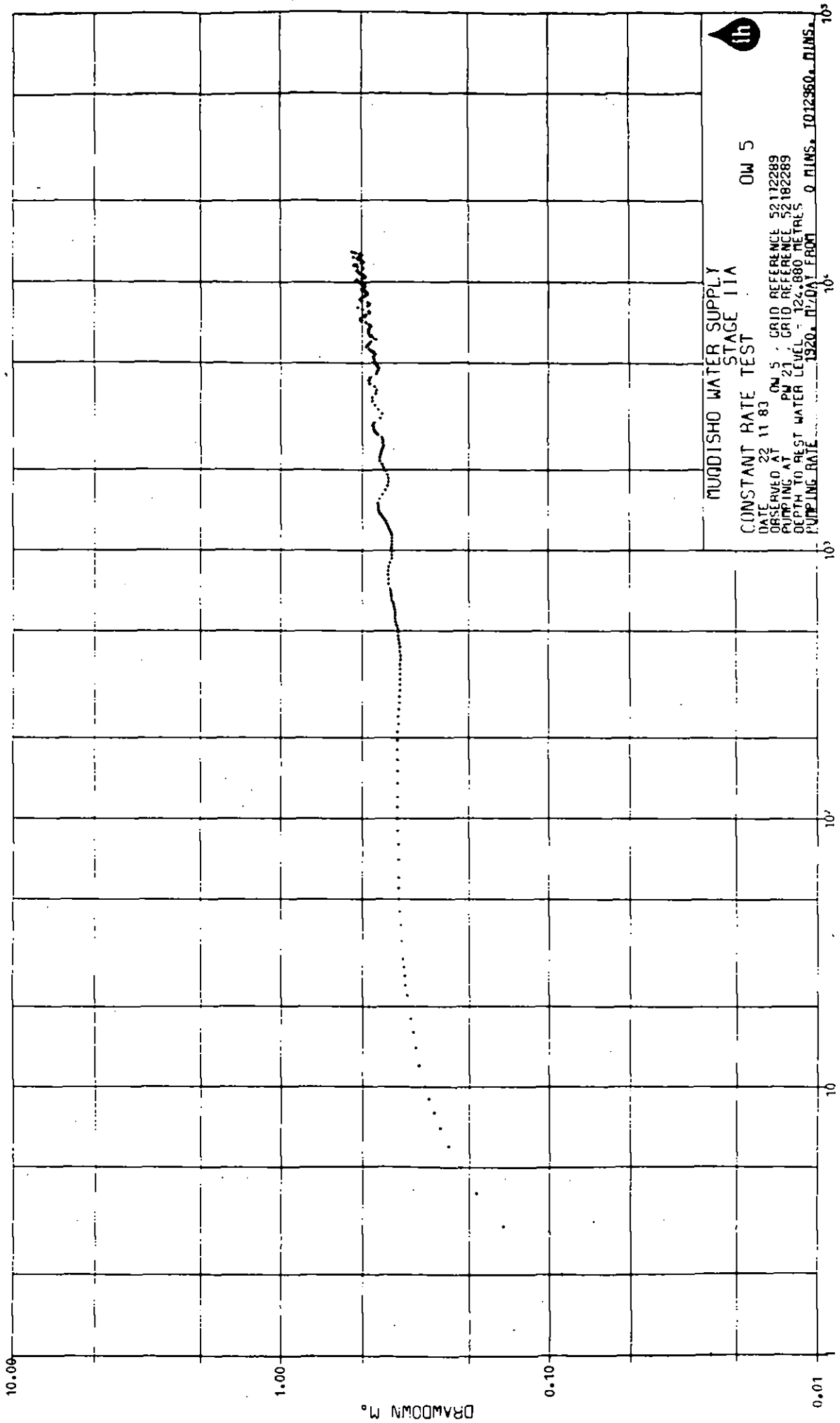
DRAWDOWN(M)

8640.0	12.590
8760.0	12.590
8880.0	12.600
9000.0	12.600
9120.0	12.610
9240.0	12.590
9360.0	12.630
9480.0	12.610
9600.0	12.630
9720.0	12.630
9840.0	12.620
9960.0	12.640
10080.0	12.650
10200.0	12.650
10320.0	12.650
10440.0	12.650
10560.0	12.620
10680.0	12.640
10800.0	12.660

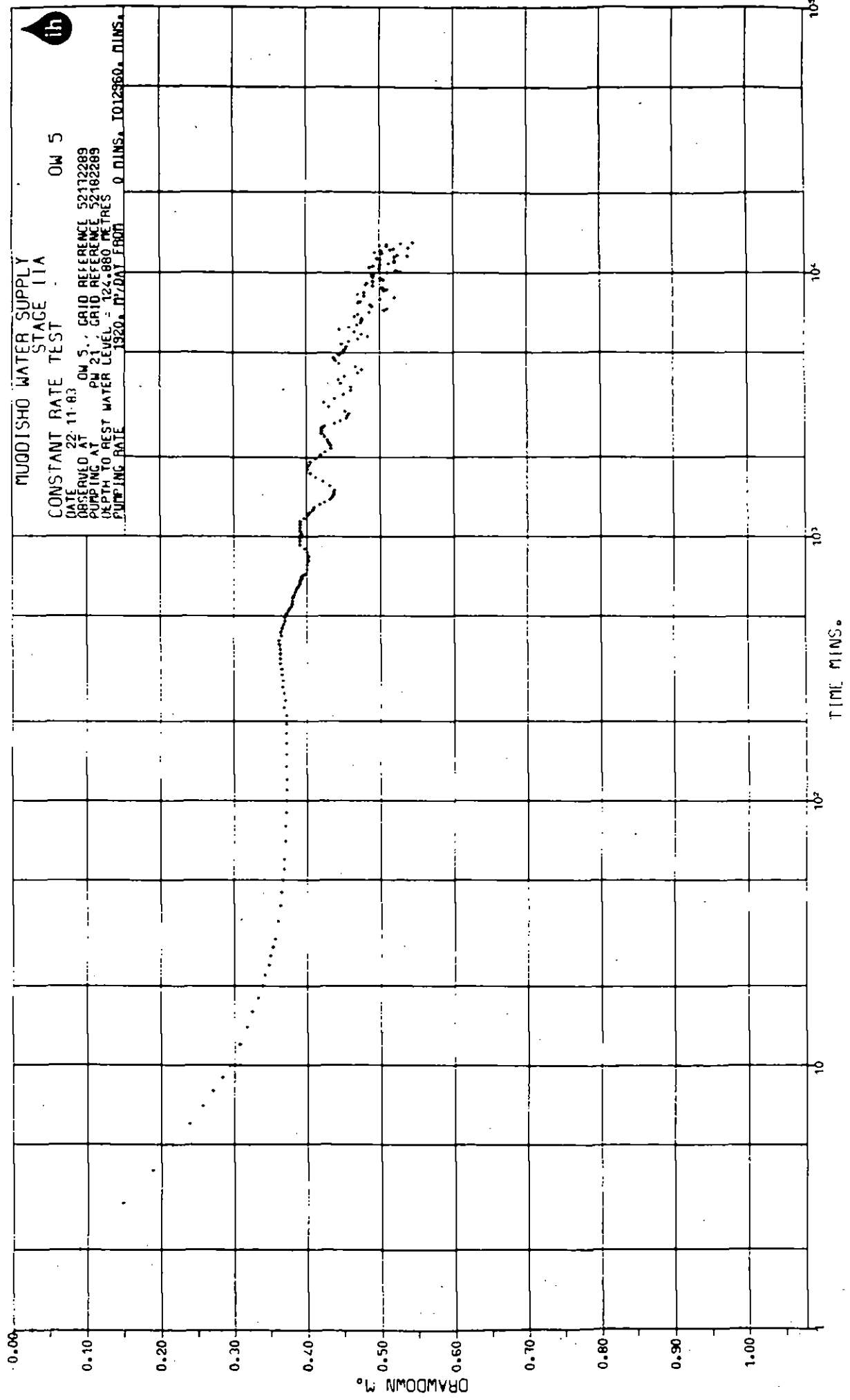
TIME(MINS)

DRAWDOWN(M)

10920.0	12.660
11040.0	12.670
11160.0	12.650
11280.0	12.660
11400.0	12.700
11520.0	12.820
11640.0	12.820
11760.0	12.810
11880.0	12.810
12000.0	12.810
12120.0	12.910
12240.0	12.830
12360.0	12.820
12480.0	12.820
12600.0	12.790
12720.0	12.800
12840.0	12.830
12960.0	12.830



MUDDISHO WATER SUPPLY
 STAGE 11A
 CONSTANT RATE TEST
 DATE 22 11 83
 OBSERVED AT
 PUMPING AT
 DEPTH TO TEST WATER LEVEL 124.880 METRES
 PUMPING RATE 1320.07041 FROM 0 MINS. TO 12960.0 MINS.
 OW 5
 GRID REFERENCE 52132289
 GRID REFERENCE 52182289
 10' 10' 10'



MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT OW 5 GRID REF. 52172289

PUMPING AT PW 21 GRID REF. 52182289

DATE OF TEST 22 11 83

PUMPING RATES (M**3/DAY) :
1920.0 FROM 0.0 MINS TO 12960.0 MINS

REST WATER LEVEL 124.880 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	0.025	210.0	0.372
2.0	0.040	225.0	0.368
3.0	0.143	240.0	0.370
4.0	0.138	255.0	0.368
5.0	0.215	270.0	0.366
6.0	0.238	285.0	0.367
7.0	0.256	300.0	0.365
8.0	0.270	315.0	0.365
9.0	0.283	330.0	0.363
10.0	0.293	345.0	0.363
12.0	0.307	360.0	0.363
14.0	0.318	375.0	0.363
16.0	0.325	390.0	0.362
18.0	0.333	405.0	0.362
20.0	0.339	420.0	0.365
22.0	0.342	435.0	0.364
24.0	0.348	450.0	0.366
26.0	0.350	465.0	0.368
28.0	0.353	480.0	0.370
30.0	0.356	495.0	0.370
35.0	0.360	510.0	0.372
40.0	0.363	525.0	0.375
45.0	0.365	540.0	0.378
50.0	0.367	555.0	0.380
55.0	0.368	570.0	0.380
60.0	0.368	585.0	0.380
70.0	0.370	600.0	0.382
80.0	0.370	615.0	0.384
90.0	0.371	630.0	0.385
100.0	0.372	645.0	0.388
110.0	0.372	660.0	0.390
120.0	0.372	675.0	0.390
135.0	0.372	690.0	0.392
150.0	0.372	705.0	0.392
165.0	0.372	720.0	0.396
180.0	0.372	750.0	0.400
195.0	0.372	780.0	0.400

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT OW 5 GRID REF. 52172289

PUMPING AT PW 21 GRID REF. 52182289

DATE OF TEST 22 11 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
810.0	0.402	2580.0	0.420
840.0	0.402	2640.0	0.424
870.0	0.400	2700.0	0.438
900.0	0.396	2760.0	0.446
930.0	0.390	2820.0	0.454
960.0	0.390	2880.0	0.455
990.0	0.390	2940.0	0.458
1020.0	0.392	3000.0	0.452
1050.0	0.390	3120.0	0.430
1080.0	0.390	3240.0	0.423
1110.0	0.390	3360.0	0.438
1140.0	0.390	3480.0	0.450
1170.0	0.395	3600.0	0.460
1200.0	0.400	3720.0	0.460
1230.0	0.404	3840.0	0.447
1260.0	0.408	3960.0	0.444
1290.0	0.410	4080.0	0.452
1320.0	0.413	4200.0	0.470
1350.0	0.424	4320.0	0.475
1380.0	0.432	4440.0	0.467
1410.0	0.435	4560.0	0.445
1440.0	0.437	4680.0	0.440
1470.0	0.437	4800.0	0.437
1500.0	0.436	4920.0	0.445
1530.0	0.432	5040.0	0.450
1560.0	0.422	5160.0	0.452
1620.0	0.412	5280.0	0.455
1680.0	0.405	5400.0	0.448
1740.0	0.401	5520.0	0.453
1800.0	0.402	5640.0	0.470
1860.0	0.405	5760.0	0.483
1920.0	0.412	5880.0	0.475
1980.0	0.419	6000.0	0.465
2040.0	0.425	6120.0	0.445
2100.0	0.433	6240.0	0.458
2160.0	0.433	6360.0	0.469
2220.0	0.430	6480.0	0.474
2280.0	0.428	6600.0	0.475
2340.0	0.424	6720.0	0.475
2400.0	0.420	6840.0	0.465
2460.0	0.420	6960.0	0.470
2520.0	0.420		

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

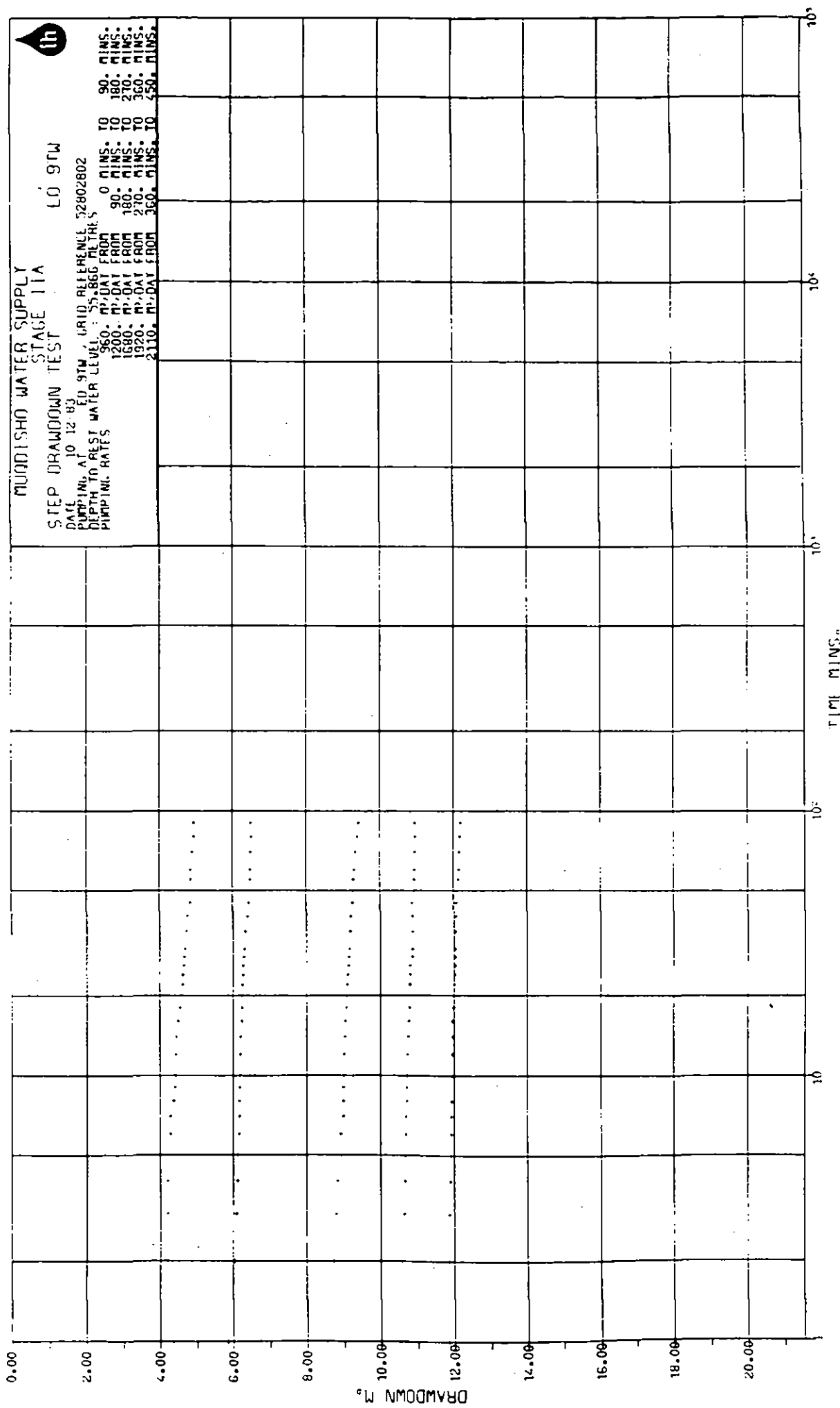
CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT OW 5 GRID REF. 52172289

PUMPING AT PW 21 GRID REF. 52182289

DATE OF TEST 22 11 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
7030.0	0.485	10080.0	0.528
7200.0	0.505	10200.0	0.522
7320.0	0.510	10320.0	0.498
7440.0	0.489	10440.0	0.485
7560.0	0.486	10560.0	0.490
7680.0	0.470	10680.0	0.500
7800.0	0.474	10800.0	0.512
7920.0	0.500	10920.0	0.520
8040.0	0.520	11040.0	0.520
8160.0	0.473	11160.0	0.500
8280.0	0.470	11280.0	0.495
8400.0	0.478	11400.0	0.520
8520.0	0.505	11520.0	0.538
8640.0	0.510	11640.0	0.525
8760.0	0.503	11760.0	0.503
8880.0	0.490	11880.0	0.493
9000.0	0.480	12000.0	0.502
9120.0	0.482	12120.0	0.515
9240.0	0.490	12240.0	0.520
9360.0	0.504	12360.0	0.540
9480.0	0.500	12480.0	0.510
9600.0	0.490	12600.0	0.500
9720.0	0.490	12720.0	0.510
9840.0	0.490	12840.0	0.530
9960.0	0.510	12960.0	0.546



MUQDISHO WATER SUPPLY

STAGE IIA

STEP DRAWDOWN TEST -

PUMPED WELL

PUMPING AT

ED 9TW GRID REF. 52302802

DATE OF TEST

10 12 83

PUMPING RATES (M**3/DAY) :

960.0 FROM	0.0 MINS TO	90.0 MINS
1200.0 FROM	90.0 MINS TO	180.0 MINS
1680.0 FROM	180.0 MINS TO	270.0 MINS
1920.0 FROM	270.0 MINS TO	360.0 MINS
2110.0 FROM	360.0 MINS TO	450.0 MINS

REST WATER LEVEL 55.866 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	4.340	98.0	6.150
2.0	4.180	99.0	6.160
3.0	4.180	100.0	6.170
4.0	4.180	102.0	6.180
5.0	4.190	104.0	6.190
6.0	4.230	106.0	6.230
7.0	4.280	108.0	6.240
8.0	4.360	110.0	6.240
9.0	4.390	112.0	6.250
10.0	4.400	114.0	6.270
12.0	4.410	116.0	6.270
14.0	4.420	118.0	6.290
16.0	4.490	120.0	6.310
18.0	4.540	125.0	6.330
20.0	4.560	130.0	6.380
22.0	4.610	135.0	6.430
24.0	4.610	140.0	6.440
26.0	4.640	145.0	6.470
28.0	4.650	150.0	6.470
30.0	4.660	160.0	6.480
35.0	4.710	170.0	6.500
40.0	4.740	180.0	6.490
45.0	4.840	181.0	8.520
50.0	4.880	182.0	8.720
55.0	4.860	183.0	8.780
60.0	4.850	134.0	8.820
70.0	4.890	185.0	8.920
80.0	4.940	186.0	8.910
90.0	4.940	187.0	8.980
91.0	5.840	188.0	8.980
92.0	6.040	189.0	8.970
93.0	6.080	190.0	8.990
94.0	6.100	192.0	9.000
95.0	6.110	194.0	9.020
96.0	6.140	196.0	9.030
97.0	6.150	198.0	9.060

(CONTINUED)

MUQDISHO WATER SUPPLY

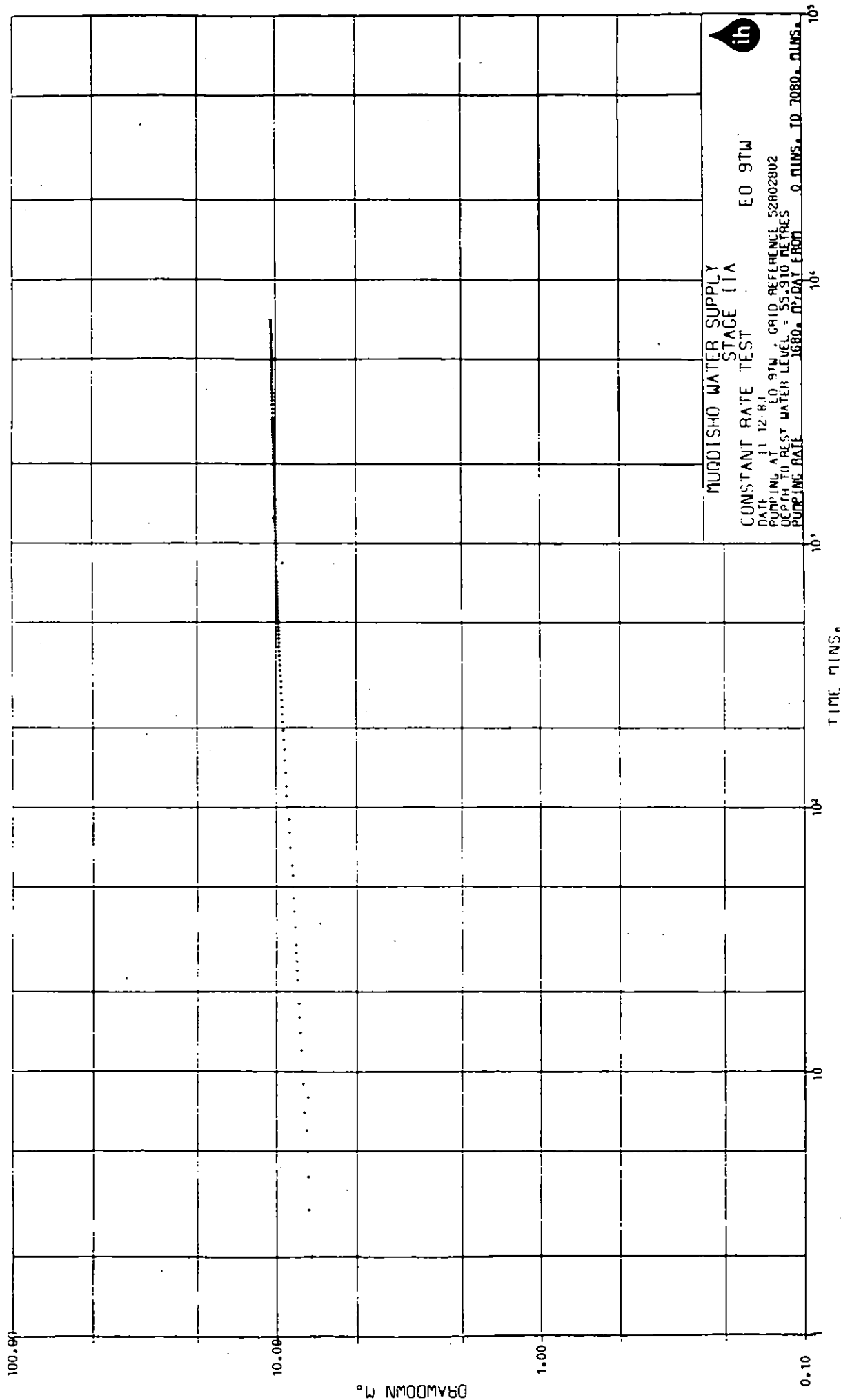
STAGE IIA

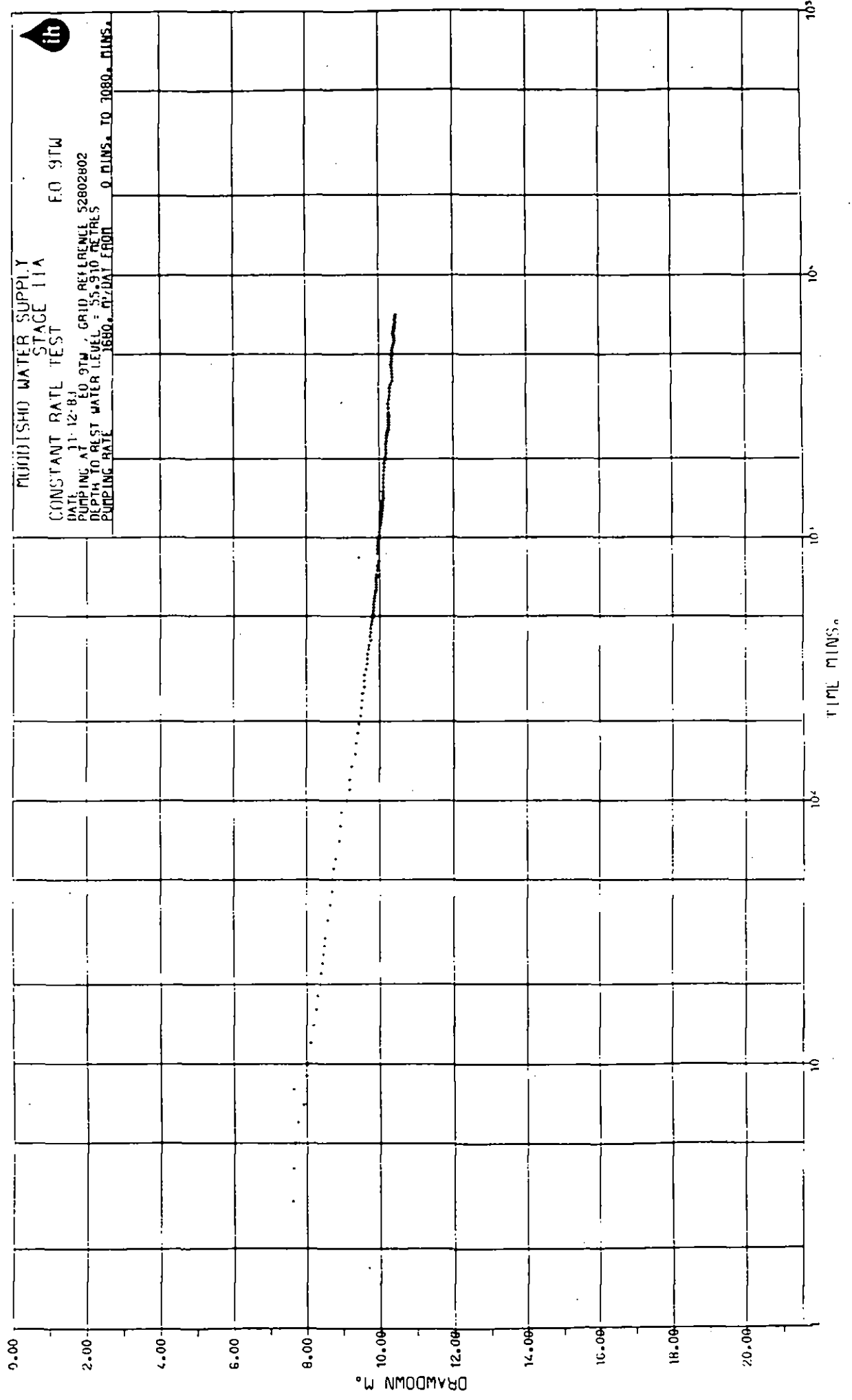
STEP DRAWDOWN TEST - PUMPED WELL

PUMPING AT EO 9TW GRID REF. 52802802

DATE OF TEST 10 12 83

TIME (MINS)	DRAWDOWN (M)	TIME (MINS)	DRAWDOWN (M)
200.0	9.080	310.0	10.870
202.0	9.090	315.0	10.860
204.0	9.110	320.0	10.930
206.0	9.130	325.0	10.930
208.0	9.140	330.0	10.930
210.0	9.160	340.0	10.940
215.0	9.180	350.0	10.950
220.0	9.190	360.0	10.950
225.0	9.250	361.0	11.840
230.0	9.260	362.0	11.860
235.0	9.270	363.0	11.870
240.0	9.290	364.0	11.890
250.0	9.320	365.0	11.910
260.0	9.330	366.0	11.920
270.0	9.410	367.0	11.920
271.0	10.490	368.0	11.930
272.0	10.550	370.0	11.940
273.0	10.610	372.0	11.950
274.0	10.630	374.0	11.960
275.0	10.640	376.0	11.960
276.0	10.660	378.0	11.980
277.0	10.670	380.0	11.990
278.0	10.690	382.0	12.000
279.0	10.690	384.0	12.010
280.0	10.710	386.0	12.030
282.0	10.720	388.0	12.040
284.0	10.740	390.0	12.040
286.0	10.760	395.0	12.040
288.0	10.780	400.0	12.050
290.0	10.800	405.0	12.070
292.0	10.790	410.0	12.090
294.0	10.800	415.0	12.120
296.0	10.800	420.0	12.140
298.0	10.860	430.0	12.150
300.0	10.870	440.0	12.160
305.0	10.870	450.0	12.180





MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - PUMPED WELL

PUMPING AT EO 9TW GRID REF. 52802802

DATE OF TEST 11 12 83

PUMPING RATES (M**3/DAY) :

1680.0 FROM 0.0 MINS TO 7080.0 MINS

REST WATER LEVEL 55.910 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	7.240	225.0	9.500
2.0	7.420	240.0	9.520
3.0	7.610	255.0	9.540
4.0	7.630	270.0	9.580
5.0	7.660	285.0	9.580
6.0	7.740	300.0	9.590
7.0	7.900	315.0	9.630
8.0	7.630	330.0	9.660
9.0	7.990	345.0	9.660
10.0	8.040	360.0	9.670
12.0	8.110	375.0	9.700
14.0	8.180	390.0	9.710
16.0	8.250	405.0	9.760
18.0	8.290	420.0	9.720
20.0	8.360	435.0	9.740
22.0	8.380	450.0	9.740
24.0	8.420	465.0	9.760
26.0	8.440	480.0	9.780
28.0	8.480	495.0	9.800
30.0	8.500	510.0	9.810
35.0	8.580	525.0	9.820
40.0	8.650	540.0	9.830
45.0	8.680	555.0	9.830
50.0	8.700	570.0	9.840
55.0	8.740	585.0	9.850
60.0	8.800	600.0	9.860
70.0	8.900	615.0	9.870
80.0	8.940	630.0	9.900
90.0	8.960	645.0	9.900
100.0	9.120	660.0	9.900
110.0	9.200	675.0	9.900
120.0	9.200	690.0	9.900
135.0	9.240	705.0	9.910
150.0	9.330	720.0	9.910
165.0	9.350	750.0	9.940
180.0	9.400	780.0	9.940
195.0	9.430	810.0	9.960
210.0	9.480	840.0	9.440

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST -

PUMPED WELL

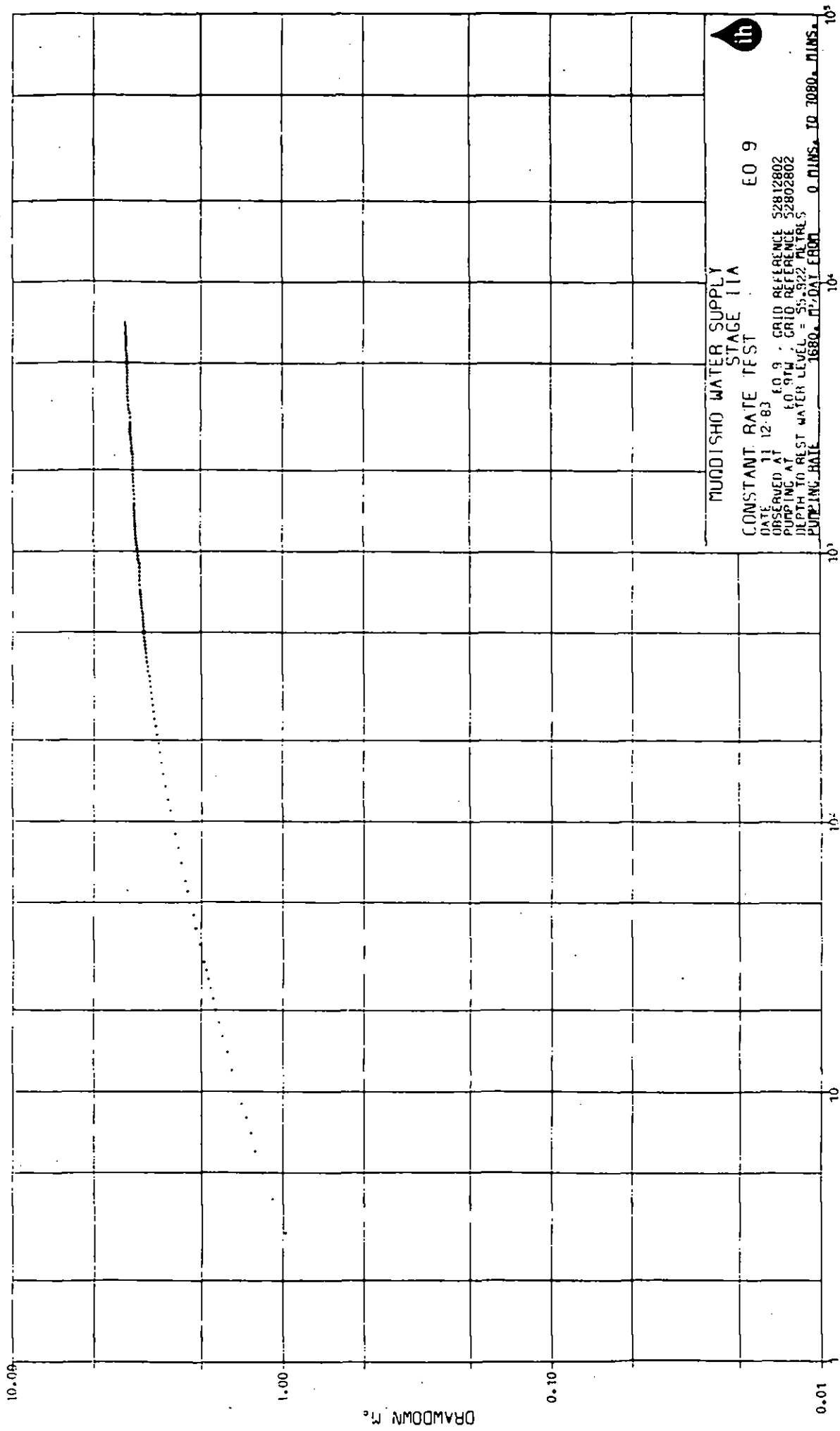
PUMPING AT

EO 9TW GRID REF. 52802802

DATE OF TEST

11 12 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
870.0	9.940	2700.0	10.250
900.0	9.940	2760.0	10.250
930.0	9.940	2820.0	10.250
960.0	9.950	2880.0	10.250
990.0	9.980	2940.0	10.260
1020.0	9.990	3000.0	10.250
1050.0	9.990	3120.0	10.250
1080.0	10.010	3240.0	10.240
1110.0	10.020	3360.0	10.260
1140.0	10.040	3480.0	10.280
1170.0	10.050	3600.0	10.290
1200.0	10.060	3720.0	10.280
1230.0	10.070	3840.0	10.310
1260.0	10.070	3960.0	10.340
1290.0	10.070	4080.0	10.340
1320.0	10.070	4200.0	10.340
1350.0	10.070	4320.0	10.330
1380.0	10.070	4440.0	10.330
1410.0	10.100	4560.0	10.310
1440.0	10.090	4680.0	10.330
1470.0	10.090	4800.0	10.330
1500.0	10.090	4920.0	10.340
1560.0	10.100	5040.0	10.340
1620.0	10.100	5160.0	10.340
1680.0	10.100	5280.0	10.360
1740.0	10.110	5400.0	10.370
1800.0	10.110	5520.0	10.410
1860.0	10.130	5640.0	10.410
1920.0	10.110	5760.0	10.400
1980.0	10.150	5880.0	10.390
2040.0	10.160	6000.0	10.370
2100.0	10.180	6120.0	10.400
2160.0	10.180	6240.0	10.410
2220.0	10.170	6360.0	10.410
2280.0	10.170	6480.0	10.410
2340.0	10.190	6600.0	10.440
2400.0	10.190	6720.0	10.420
2460.0	10.200	6840.0	10.440
2520.0	10.210	6960.0	10.440
2580.0	10.250	7080.0	10.450
2640.0	10.250		



MUDDISHO WATER SUPPLY
STAGE 11A

CONSTANT RATE TEST

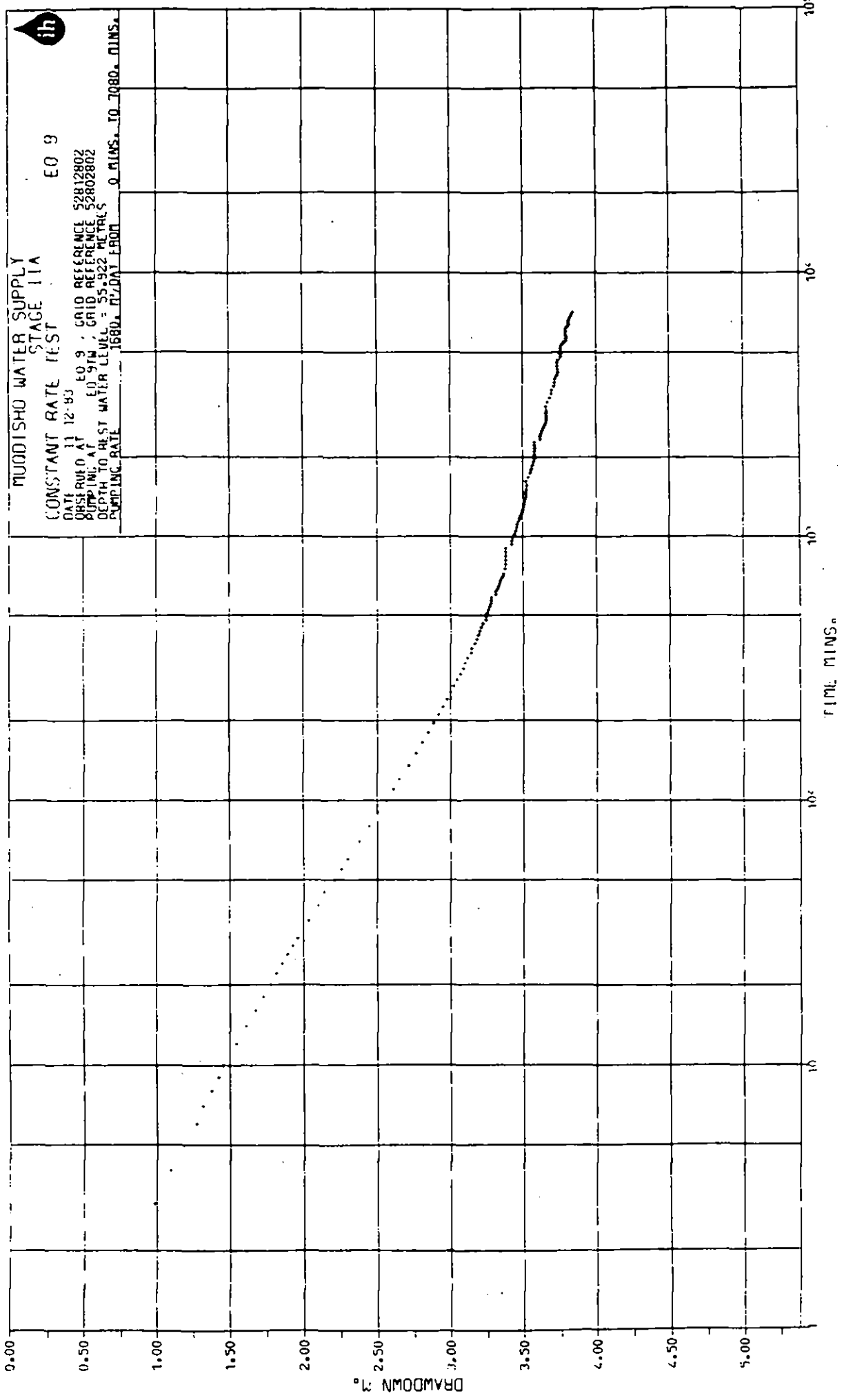
DATE 11-12-83 E.O. 9

OBSERVED AT 10.9 GRID REFERENCE 52812802

PUMPING AT 10.97M GRID REFERENCE 52802802

DEPTH TO TEST WATER LEVEL = 35.92 METERS

PUMPING RATE 1680 LITERS PER MIN. ID 3080. DIMS.



MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT EO 9 GRID REF. 52812802

PUMPING AT EO 9TW GRID REF. 52802802

DATE OF TEST 11 12 83

PUMPING RATES (M**3/DAY) :
1680.0 FROM 0.0 MINS TO 7080.0 MINS

REST WATER LEVEL 55.922 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	0.723	210.0	2.915
2.0	0.857	225.0	2.944
3.0	0.983	240.0	2.973
4.0	1.096	255.0	2.997
5.0	1.185	270.0	3.021
6.0	1.272	285.0	3.043
7.0	1.316	300.0	3.067
8.0	1.374	315.0	3.087
9.0	1.425	330.0	3.098
10.0	1.453	345.0	3.118
12.0	1.543	360.0	3.146
14.0	1.606	375.0	3.148
16.0	1.671	390.0	3.169
18.0	1.724	405.0	3.180
20.0	1.774	420.0	3.190
22.0	1.814	435.0	3.201
24.0	1.854	450.0	3.212
26.0	1.891	465.0	3.224
28.0	1.925	480.0	3.244
30.0	1.960	495.0	3.245
35.0	2.034	510.0	3.250
40.0	2.097	525.0	3.261
45.0	2.136	540.0	3.269
50.0	2.208	555.0	3.279
55.0	2.254	570.0	3.280
60.0	2.298	585.0	3.282
70.0	2.375	600.0	3.313
80.0	2.442	615.0	3.312
90.0	2.503	630.0	3.326
100.0	2.563	645.0	3.332
110.0	2.612	660.0	3.338
120.0	2.653	675.0	3.343
135.0	2.713	690.0	3.352
150.0	2.763	705.0	3.366
165.0	2.806	720.0	3.368
180.0	2.847	750.0	3.378
195.0	2.883	780.0	3.383

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT EO 9 GRID REF. 52812802

PUMPING AT EO YTW GRID REF. 52802802

DATE OF TEST 11 12 83

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
810.0	3.383	2580.0	3.643
840.0	3.383	2640.0	3.651
870.0	3.383	2700.0	3.660
900.0	3.383	2760.0	3.665
930.0	3.423	2820.0	3.663
960.0	3.424	2880.0	3.663
990.0	3.429	2940.0	3.663
1020.0	3.443	3000.0	3.666
1050.0	3.454	3120.0	3.660
1080.0	3.458	3240.0	3.673
1110.0	3.460	3360.0	3.691
1140.0	3.471	3480.0	3.703
1170.0	3.480	3600.0	3.708
1200.0	3.485	3720.0	3.722
1230.0	3.491	3840.0	3.722
1260.0	3.497	3960.0	3.723
1290.0	3.503	4080.0	3.738
1320.0	3.507	4200.0	3.745
1350.0	3.511	4320.0	3.740
1380.0	3.513	4440.0	3.739
1410.0	3.523	4560.0	3.738
1440.0	3.521	4680.0	3.743
1470.0	3.521	4800.0	3.763
1500.0	3.523	4920.0	3.762
1560.0	3.528	5040.0	3.762
1620.0	3.523	5160.0	3.762
1680.0	3.538	5280.0	3.766
1740.0	3.551	5400.0	3.779
1800.0	3.560	5520.0	3.798
1860.0	3.568	5640.0	3.801
1920.0	3.574	5760.0	3.801
1980.0	3.582	5880.0	3.793
2040.0	3.580	6000.0	3.798
2100.0	3.582	6120.0	3.798
2160.0	3.582	6240.0	3.810
2220.0	3.582	6360.0	3.818
2280.0	3.581	6480.0	3.818
2340.0	3.621	6600.0	3.818
2400.0	3.618	6720.0	3.823
2460.0	3.626	6840.0	3.833
2520.0	3.633	6960.0	3.840

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

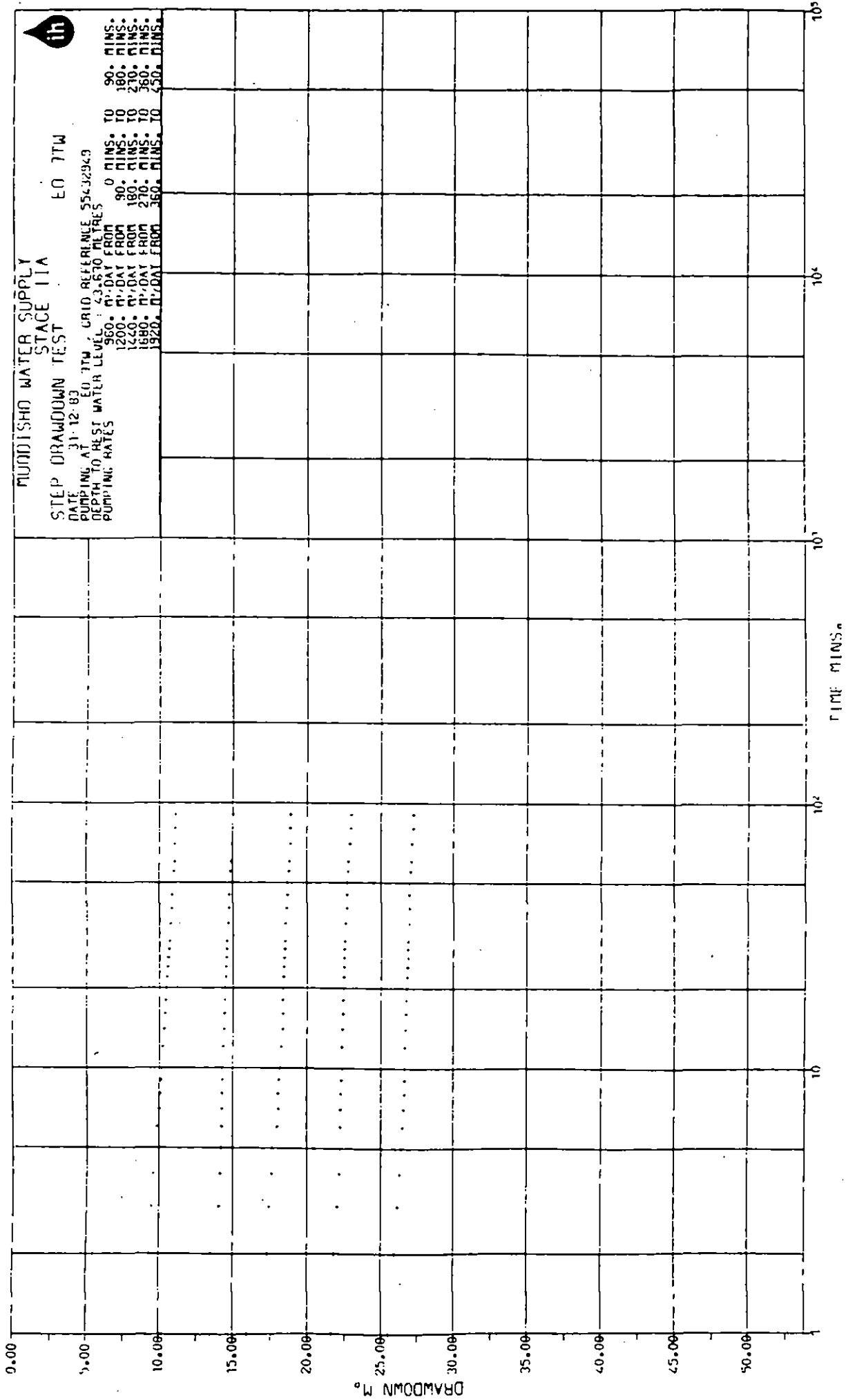
OBSERVED AT EO 9 GRID REF. 52812802

PUMPING AT EO 9TW GRID REF. 52802802

DATE OF TEST 11 12 83

TIME(MINS)
7080.0

DRAWDOWN(M)
3.848



MUQDISHO WATER SUPPLY

STAGE IIA

STEP DRAWDOWN TEST - PUMPED WELL

PUMPING AT EJ 7TW GRID REF. 55432949

DATE OF TEST 31 12 83

PUMPING RATES (M**3/DAY) :

960.0 FROM	0.0 MINS TO	90.0 MINS
1200.0 FROM	90.0 MINS TO	180.0 MINS
1440.0 FROM	180.0 MINS TO	270.0 MINS
1680.0 FROM	270.0 MINS TO	360.0 MINS
1920.0 FROM	360.0 MINS TO	450.0 MINS

REST WATER LEVEL 43.670 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	10.180	98.0	14.270
2.0	9.340	99.0	14.290
3.0	9.480	100.0	14.280
4.0	9.580	102.0	14.350
5.0	9.740	104.0	14.430
6.0	9.910	106.0	14.450
7.0	9.980	108.0	14.450
8.0	10.050	110.0	14.480
9.0	10.100	112.0	14.530
10.0	10.150	114.0	14.540
12.0	10.220	116.0	14.570
14.0	10.320	118.0	14.570
16.0	10.380	120.0	14.570
18.0	10.420	125.0	14.680
20.0	10.480	130.0	14.700
22.0	10.520	135.0	14.750
24.0	10.560	140.0	14.790
26.0	10.600	145.0	14.830
28.0	10.650	150.0	14.880
30.0	10.670	160.0	14.940
35.0	10.740	170.0	15.000
40.0	10.820	180.0	15.040
45.0	10.870	181.0	15.940
50.0	10.930	182.0	17.340
55.0	10.980	183.0	17.440
60.0	11.020	184.0	17.620
70.0	11.030	185.0	17.680
80.0	11.050	186.0	17.950
90.0	11.070	187.0	18.050
91.0	13.480	188.0	18.030
92.0	13.490	189.0	18.080
93.0	14.080	190.0	18.150
94.0	14.160	192.0	18.230
95.0	14.230	194.0	18.340
96.0	14.250	196.0	18.340
97.0	14.260	198.0	18.350

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

STEP DRAWDOWN TEST -

PUMPED WELL

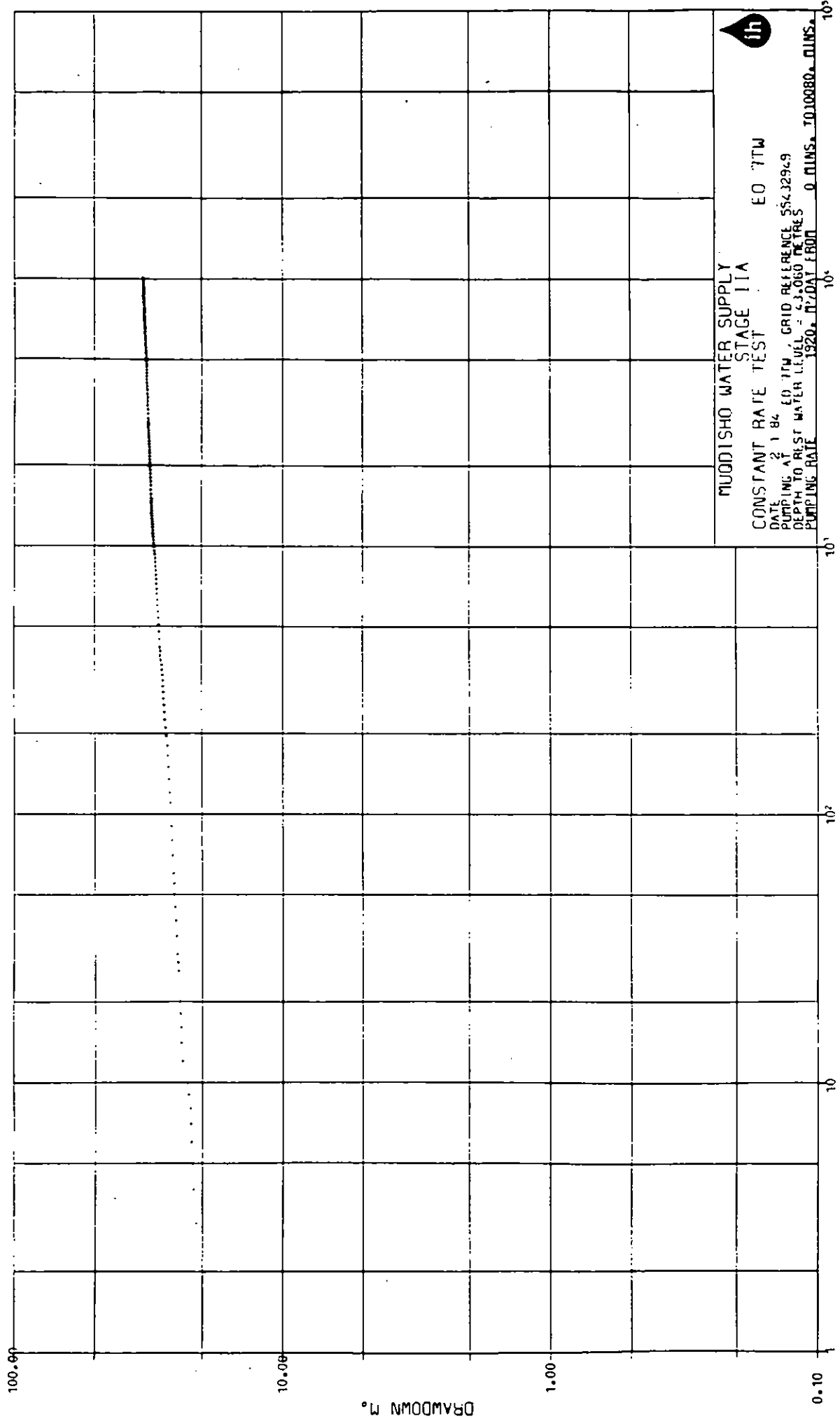
PUMPING AT


EO 7TW GRID REF. 55432949

DATE OF TEST

31 12 83

TIME (MINS)	DRAWDOWN (M)	TIME (MINS)	DRAWDOWN (M)
200.0	18.390	315.0	22.690
202.0	18.390	320.0	22.730
204.0	18.420	325.0	22.760
206.0	18.440	330.0	22.790
208.0	18.480	340.0	22.900
210.0	18.490	350.0	22.950
215.0	18.500	360.0	22.990
220.0	18.580	361.0	25.480
225.0	18.680	362.0	25.930
230.0	18.680	363.0	26.140
235.0	18.750	364.0	26.280
240.0	18.780	365.0	26.390
250.0	18.660	366.0	26.460
260.0	18.660	367.0	26.540
270.0	18.870	368.0	26.580
271.0	21.630	369.0	26.610
272.0	21.820	370.0	26.620
273.0	22.050	372.0	26.640
274.0	22.160	374.0	26.680
275.0	22.220	376.0	26.690
276.0	22.240	378.0	26.720
277.0	22.250	380.0	26.750
278.0	22.270	382.0	26.790
279.0	22.310	384.0	26.810
280.0	22.360	386.0	26.840
282.0	22.360	388.0	26.850
284.0	22.390	390.0	26.850
286.0	22.440	395.0	26.920
288.0	22.450	400.0	26.960
290.0	22.460	405.0	26.990
292.0	22.480	410.0	27.010
294.0	22.500	415.0	27.070
296.0	22.510	420.0	27.120
298.0	22.530	430.0	27.150
300.0	22.550	440.0	27.250
305.0	22.590	450.0	27.260
310.0	22.660		



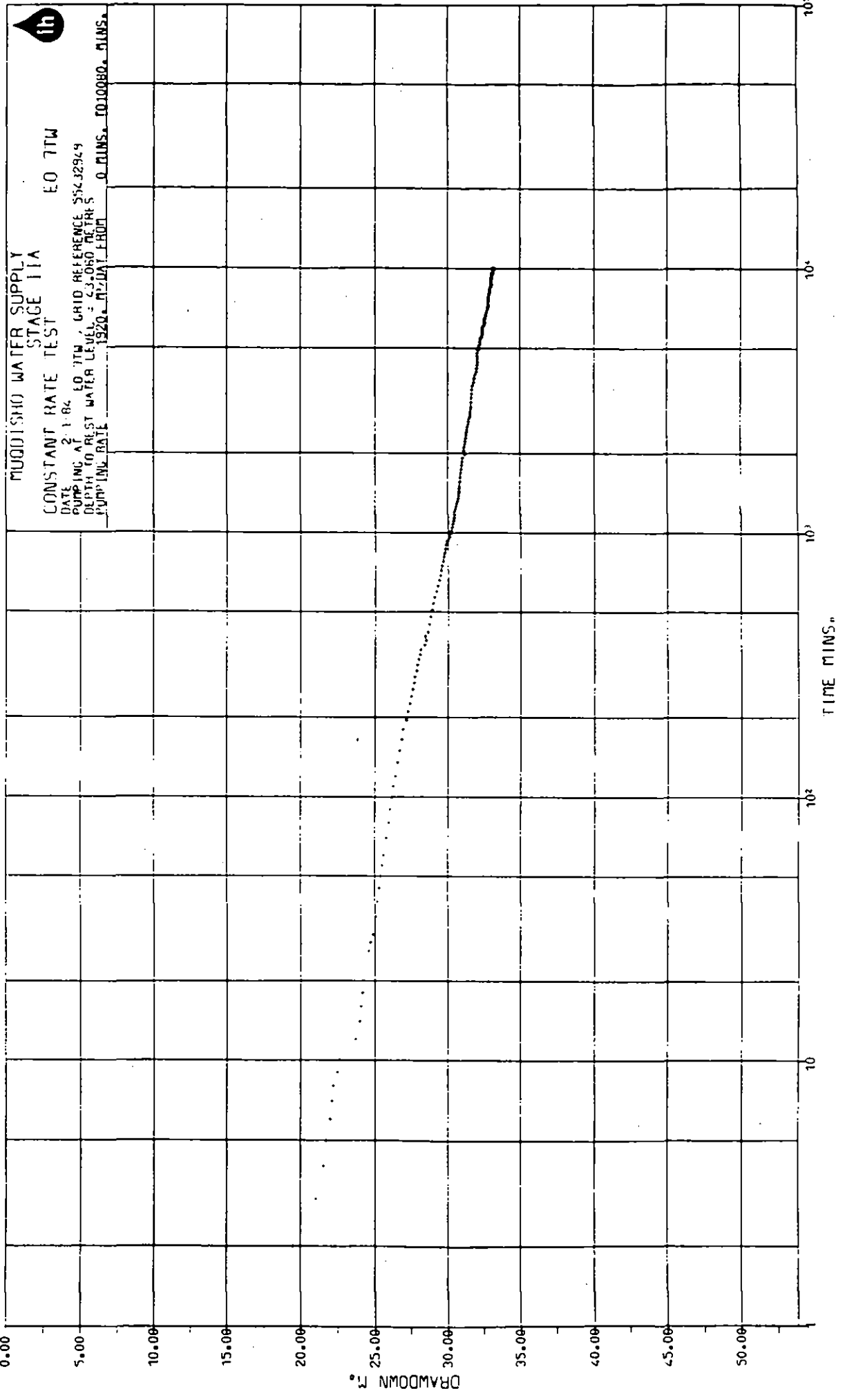


 MUODISHO WATER SUPPLY
 STAGE 11A
 CONSTANT RATE TEST
 DATE 21.84
 PUMPING AT EO 7TW
 GRID REFERENCE 55432949
 DEPTH TO REST WATER LEVEL = 43.060 METRES
 PUMPING RATE 1920. M³/DAY FROM 0 MINS. TO 10080. MINS.

DRAWDOWN M.

TIME MINS.

MUJIDISHO WATER SUPPLY
 STAGE 11A
 CONSTANT RATE TEST
 DATE 2-1-84
 PUMPING AT EO JTW
 GRID REFERENCE 5542949
 DEPTH TO TEST WATER LEVEL = 43.050 METERS
 PUMPING RATE 1920 L/M/DAY FROM 0 MINS. TO 10080 MINS.



MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - PUMPED WELL

PUMPING AT ED 7TH GRID REF. 55432949

DATE OF TEST 2 1 84

PUMPING RATES (M**3/DAY) :
1920.0 FROM 0.0 MINS TO 10080.0 MINS

REST WATER LEVEL 43.060 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	16.950	255.0	27.630
2.0	19.460	270.0	27.730
3.0	21.010	285.0	27.750
4.0	21.510	300.0	27.890
5.0	21.710	315.0	27.920
6.0	21.980	330.0	28.020
7.0	22.090	345.0	28.100
8.0	22.190	360.0	28.160
9.0	22.480	375.0	28.420
10.0	22.640	390.0	28.520
12.0	23.690	405.0	28.450
14.0	23.970	420.0	28.650
16.0	24.050	450.0	28.740
18.0	24.150	480.0	28.820
20.0	24.220	510.0	28.920
26.0	24.550	540.0	28.990
28.0	24.680	570.0	29.090
30.0	24.830	600.0	29.210
35.0	24.990	630.0	29.300
40.0	25.140	660.0	29.400
45.0	25.280	690.0	29.460
50.0	25.360	720.0	29.520
55.0	25.460	750.0	29.580
60.0	25.580	780.0	29.650
70.0	25.760	810.0	29.690
80.0	25.940	840.0	29.760
90.0	26.040	870.0	29.810
100.0	26.180	900.0	29.830
110.0	26.270	930.0	29.900
120.0	26.430	960.0	30.080
135.0	26.580	990.0	30.150
150.0	26.720	1020.0	30.210
165.0	26.880	1050.0	30.270
180.0	26.960	1080.0	30.320
195.0	27.190	1110.0	30.380
210.0	27.300	1140.0	30.420
225.0	27.440	1170.0	30.440
240.0	27.530	1200.0	30.460

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST -

PUMPED WELL

PUMPING AT

EO 7TW GRID REF. 55432949

DATE OF TEST

2 1 84

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1230.0	30.520	3960.0	31.900
1260.0	30.590	4080.0	32.000
1290.0	30.630	4200.0	32.040
1320.0	30.680	4320.0	32.070
1350.0	30.720	4440.0	32.080
1380.0	30.740	4560.0	32.080
1410.0	30.750	4680.0	32.080
1440.0	30.780	4800.0	32.080
1470.0	30.790	4920.0	32.140
1500.0	30.790	5040.0	32.170
1560.0	30.840	5160.0	32.230
1620.0	30.860	5280.0	32.260
1630.0	30.880	5400.0	32.260
1740.0	30.920	5520.0	32.360
1800.0	30.960	5640.0	32.420
1860.0	30.980	5760.0	32.410
1920.0	31.030	5880.0	32.420
1980.0	31.180	6000.0	32.410
2040.0	31.080	6120.0	32.530
2100.0	31.120	6240.0	32.580
2160.0	31.160	6360.0	32.560
2220.0	31.200	6480.0	32.580
2280.0	31.240	6600.0	32.620
2340.0	31.260	6720.0	32.660
2400.0	31.300	6840.0	32.690
2460.0	31.320	6960.0	32.730
2520.0	31.370	7080.0	32.790
2580.0	31.420	7200.0	32.810
2640.0	31.460	7320.0	32.800
2700.0	31.460	7440.0	32.810
2760.0	31.550	7560.0	32.810
2820.0	31.570	7680.0	32.830
2880.0	31.570	7800.0	32.830
2940.0	31.590	7920.0	32.850
3000.0	31.620	8040.0	32.890
3120.0	31.630	8160.0	32.920
3240.0	31.640	8280.0	32.900
3360.0	31.690	8400.0	32.920
3480.0	31.700	8520.0	33.010
3600.0	31.720	8640.0	33.030
3720.0	31.820	8760.0	33.020
3840.0	31.860	8880.0	32.990

(CONTINUED)

MUQDISHO WATER SUPPLY

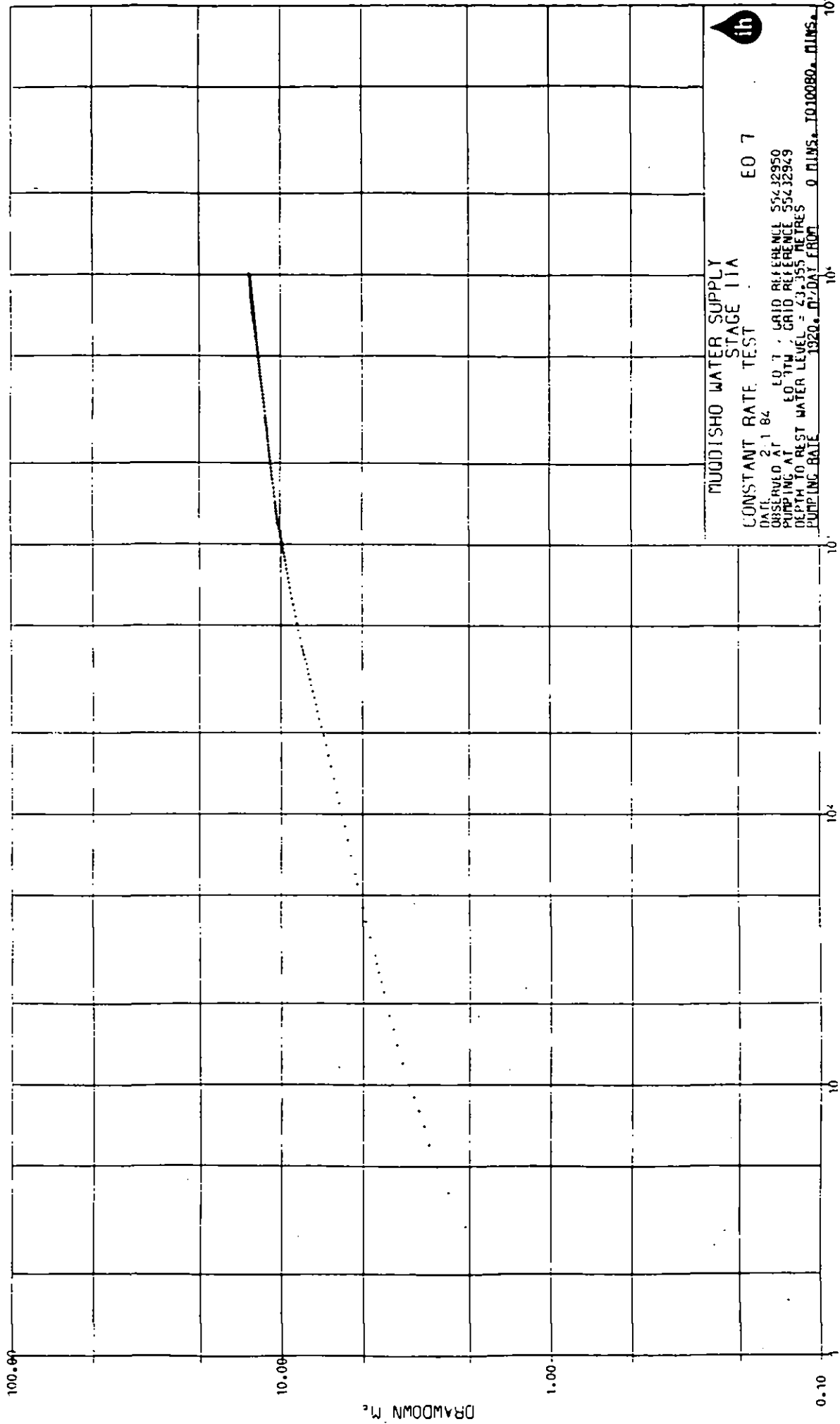
STAGE IIA

CONSTANT RATE TEST - PUMPED WELL

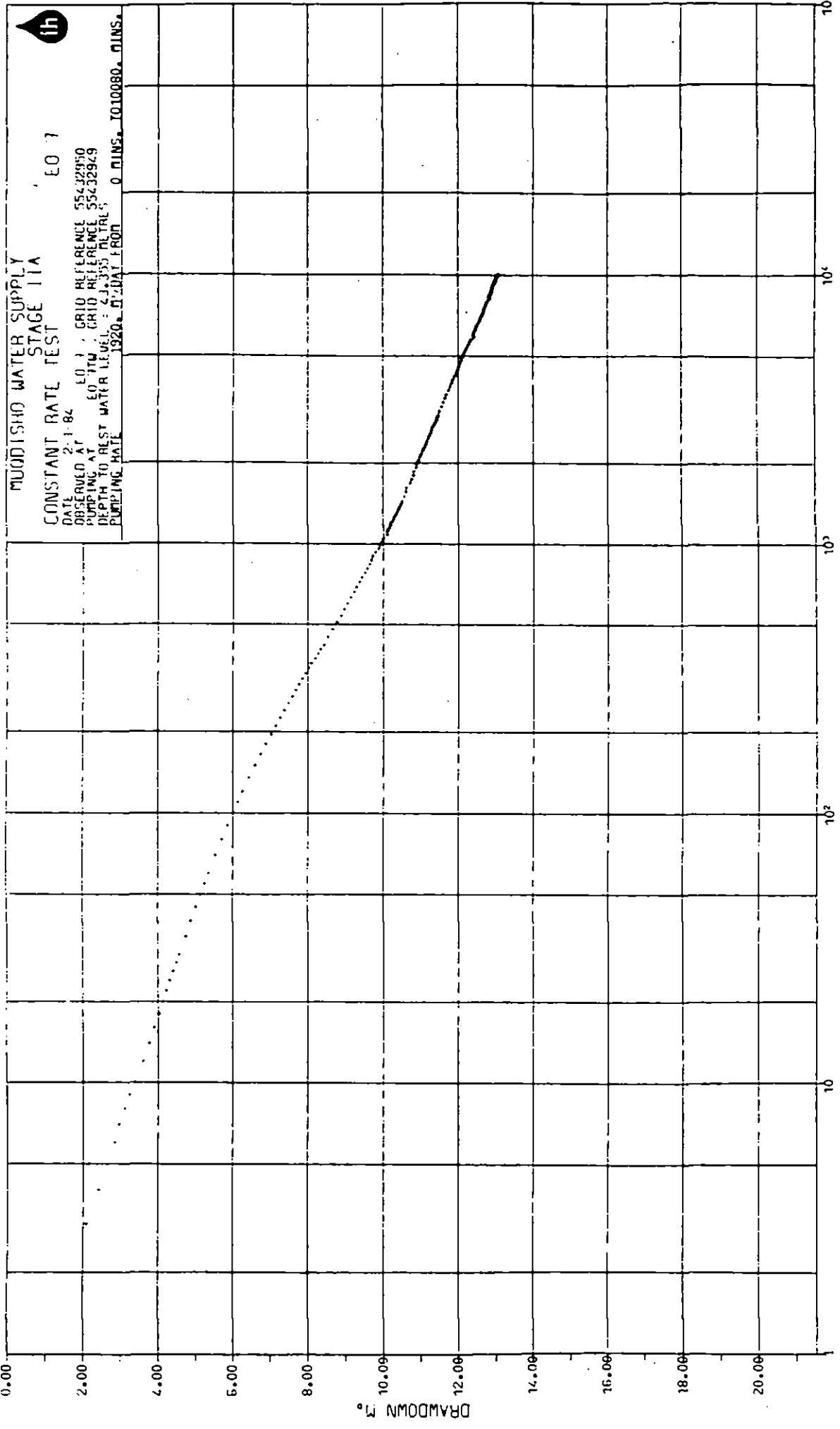
PUMPING AT EO 7TW GRID REF. 55432949

DATE OF TEST 2 1 84

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
9000.0	33.000	9600.0	33.090
9120.0	33.030	9720.0	33.100
9240.0	33.020	9840.0	33.150
9360.0	33.060	9960.0	33.180
9480.0	33.100	10080.0	33.180



MUDDISHO WATER SUPPLY
 STAGE 11A
 CONSTANT RATE TEST
 DATE 2-1-84
 OBSERVED AT E.O. 7
 PUMPING AT E.O. 7
 DEPTH TO TEST WATER LEVEL = 41.355 METERS
 PUMPING RATE 1920 LITERS PER MIN.
 0 MINS. TO 10000 MINS.



MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT EO 7 GRID REF. 55432950

PUMPING AT EO 7TW GRID REF. 55432949

DATE OF TEST 2 1 84

PUMPING RATES (M**3/DAY) :
1920.0 FROM 0.0 MINS TO 10080.0 MINS

REST WATER LEVEL 43.355 METRES BELOW DATUM

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1.0	0.685	210.0	7.147
2.0	1.550	225.0	7.263
3.0	2.078	240.0	7.373
4.0	2.400	255.0	7.478
5.0	2.631	270.0	7.580
6.0	2.825	285.0	7.679
7.0	2.950	300.0	7.766
8.0	3.090	315.0	7.848
9.0	3.235	330.0	7.932
10.0	3.380	345.0	8.012
12.0	3.592	360.0	8.085
14.0	3.759	375.0	8.188
16.0	3.885	390.0	8.270
18.0	4.020	405.0	8.340
20.0	4.120	420.0	8.427
22.0	4.222	450.0	8.530
24.0	4.312	480.0	8.656
26.0	4.397	510.0	8.768
28.0	4.478	540.0	8.873
30.0	4.550	570.0	8.955
35.0	4.726	600.0	9.047
40.0	4.873	630.0	9.134
45.0	5.008	660.0	9.223
50.0	5.133	690.0	9.288
55.0	5.239	720.0	9.365
60.0	5.344	750.0	9.436
70.0	5.536	780.0	9.505
80.0	5.706	810.0	9.567
90.0	5.861	840.0	9.630
100.0	6.003	870.0	9.677
110.0	6.133	900.0	9.715
120.0	6.258	930.0	9.795
135.0	6.431	960.0	9.865
150.0	6.593	990.0	9.905
165.0	6.738	1020.0	9.955
180.0	6.878	1050.0	10.005
195.0	7.020	1080.0	10.095

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT EO 7 GRID REF. 55432950

PUMPING AT EO 7TW GRID REF. 55432949

DATE OF TEST 2 1 34

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
1110.0	10.095	3480.0	11.650
1140.0	10.130	3600.0	11.685
1170.0	10.185	3720.0	11.745
1200.0	10.205	3840.0	11.787
1230.0	10.265	3960.0	11.825
1260.0	10.297	4080.0	11.855
1290.0	10.346	4200.0	11.907
1320.0	10.377	4320.0	11.957
1350.0	10.408	4440.0	11.985
1380.0	10.443	4560.0	12.015
1410.0	10.475	4680.0	12.035
1440.0	10.502	4800.0	12.075
1500.0	10.555	4920.0	12.090
1560.0	10.605	5040.0	12.135
1620.0	10.614	5160.0	12.165
1680.0	10.725	5280.0	12.205
1740.0	10.765	5400.0	12.239
1800.0	10.815	5520.0	12.265
1860.0	10.825	5640.0	12.303
1920.0	10.885	5760.0	12.330
1980.0	10.905	5880.0	12.415
2040.0	10.946	6000.0	12.395
2100.0	10.986	6120.0	12.413
2160.0	11.029	6240.0	12.445
2220.0	11.062	6360.0	12.473
2280.0	11.105	6480.0	12.495
2340.0	11.146	6600.0	12.527
2400.0	11.168	6720.0	12.560
2460.0	11.206	6840.0	12.565
2520.0	11.238	6960.0	12.605
2580.0	11.280	7080.0	12.635
2640.0	11.296	7200.0	12.658
2700.0	11.314	7320.0	12.679
2760.0	11.355	7440.0	12.689
2820.0	11.395	7560.0	12.695
2880.0	11.426	7680.0	12.729
2940.0	11.435	7800.0	12.743
3000.0	11.475	7920.0	12.760
3120.0	11.505	8040.0	12.798
3240.0	11.559	8160.0	12.838
3360.0	11.605	8280.0	12.820

(CONTINUED)

MUQDISHO WATER SUPPLY

STAGE IIA

CONSTANT RATE TEST - OBSERVATION WELL

OBSERVED AT ED 7 GRID REF. 55432950

PUMPING AT ED 7TW GRID REF. 55432949

DATE OF TEST 2 1 84

TIME(MINS)	DRAWDOWN(M)	TIME(MINS)	DRAWDOWN(M)
8400.0	12.835	9360.0	12.965
8520.0	12.865	9480.0	12.990
8640.0	12.883	9600.0	12.993
8760.0	12.893	9720.0	13.005
8830.0	12.903	9840.0	13.028
9000.0	12.907	9960.0	13.060
9120.0	12.929	10080.0	13.072
9240.0	12.945		



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The Institute of Hydrology is a component establishment of the Natural Environment Research Council